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L1 5 S E4,E17  
L2 1 S L1 AND CARTRIDGE  
L3 4 S L1 NOT L2  
E HEWLET/PA,CS  
L4 3329 S E3-E300  
L5 341 S E301-E417  
L6 3329 S L4,L5  
L7 201 S L6 AND B41J/IC,ICM,ICS  
L8 189 S L7 AND B41J002/IC,ICM,ICS  
L9 1 S L8 AND B41J002-04/IC,ICM,ICS  
L10 18 S L8 AND B41J002-195/IC,ICM,ICS  
L11 66 S L6 AND G03G/IC,ICM,ICS  
L12 26 S L11 AND G03G015/IC,ICM,ICS  
L13 19 S L7 AND L11  
SEL DN AN 16  
L14 1 S E1  
L15 1 S L2,L14  
L16 2 S L9,L15  
L17 30 S L10,L12 NOT L1,L13-L16  
SEL DN AN 3 7 10  
L18 4 S E1-E4  
L19 5 S L16,L18 AND L1-L18  
L20 15 S L8 AND CARTRIDG?  
L21 1 S L19 AND L20  
L22 5 S L19,L21  
L23 14 S L20 NOT L22  
L24 17 S L6 AND G06F/IC,ICM,ICS  
L25 2 S L24 AND L7,L11  
L26 15 S L24 NOT L25  
L27 5 S L22 AND L1-L26  
L28 14527 S B41J/IC,ICM,ICS  
L29 664 S L28 AND G06F/IC,ICM,ICS  
L30 2439 S L28 AND G03G/IC,ICM,ICS  
L31 95 S L29,L30 AND CARTRIDG?  
L32 37 S L31 AND CARTRIDG?/TI  
L33 58 S L31 NOT L32  
L34 56 S B41J002-04/IC,ICM,ICS  
SEL DN AN 42 51  
L35 2 S L34 AND E5-E8  
L36 7 S L16,L27,L35 AND L1-L35  
L37 0 S L34 AND G06F/IC,ICM,ICS  
L38 0 S L34 AND G03G/IC,ICM,ICS  
L39 904 S L29,L30 AND B41J002/IC,ICM,ICS  
L40 2 S L29,L30 AND B41J002-195/IC,ICM,ICS  
L41 586 S L39 AND G03G015/IC,ICM,ICS  
L42 25 S L41 AND CARTRIDG?  
L43 24 S L42 NOT L36  
SEL DN AN 2 4 7 18  
L44 4 S L43 AND E9-E12  
L45 11 S L36,L44

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Reference Librarian  
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L46 18 S L28 AND 9/SC,SX  
 L47 20 S G03G/IC,ICM,ICS AND 9/SC,SX  
 L48 38 S L46,L47  
 L49 0 S L48 AND CARTRIDG?  
       SEL DN AN 10 13 14 16 19 21-38 L48  
 L50 15 S L48 NOT E13-E81  
 L51 26 S L45,L50 AND L1-L50

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 FILE LAST UPDATED: 7 Nov 2002 (20021107/ED)

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L51 ANSWER 1 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2002:750875 HCAPLUS  
 DN 137:259606

TI Liquid-discharging apparatus for producing probe carrier, method for producing probe carrier, and apparatus for producing probe carrier

IN Hiroşawa, Toshiaki; Utagawa, Kenta

PA Canon Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002286732	A2	20021003	JP 2001-93261	20010328
AB	An app. for producing a probe carrier is provided, with which a probe soln. is discharged onto a carrier with high d. and high reproducibility. In this app., a carrier support stand for supporting the carrier, a liq.-discharging app. support stand for supporting the liq.-discharging app., and a probe soln. supply unit for supplying a probe soln. to the liq.-discharging app. are installed on an app. base in a way that they are movable relatively to each other. The probe soln. supply unit is supported above the app. base upper phase with a space. The liq.-discharging app. is installed in a way that it is movable in the range below the probe soln. supply unit and above the carrier, and it is				

convertible in its vertical direction. The liq.-discharging app. is moved beneath the probe soln. supply unit while keeping its discharging opening upwards. The probe soln. is supplied from the discharging opening into the nozzle by dropping the probe soln. from a dropping needle to the discharging opening. Diagrams describing the app. assembly are given.

L51 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2002:748293 HCAPLUS  
 DN 137:259603  
 TI Method and apparatus for producing probe carrier  
 IN Kameyama, Makoto; Okamura, Nobuyuki; Okamoto, Hisashi  
 PA Canon Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002286736	A2	20021003	JP 2001-94110	20010328
AB	A convenient means is provided for removing in a stable way a DNA probe-forming soln. which is adhered near a discharging opening in an app. for producing a probe carrier. This means is utilized in a method for producing a probe carrier on which multiple kinds of probes capable of specifically binding with a labeled substance are resp. fixed in a two-dimensional array shape. The method comprises a process for providing the multiple probe solns. contg. the resp. probe from discharging openings onto the carrier using a probe soln.-discharging head equipped with the multiple no. of discharging openings in response to the multiple probes, and a process for removing the droplets near the discharging openings of the probe soln.-discharging head. The process for removing the droplets near the discharging openings of the probe soln.-discharging head is performed by phys. giving a force in a direction roughly perpendicular to the direction for arranging the discharging openings. An app. used in this method is provided. Diagrams describing the app. assembly are given.				

L51 ANSWER 3 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2002:748292 HCAPLUS  
 DN 137:259602  
 TI Liquid-discharging apparatus for producing probe carrier, apparatus for producing probe carrier, and method for producing probe carrier  
 IN Udagawa, Kenta; Hirose, Toshiaki  
 PA Canon Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002286735	A2	20021003	JP 2001-93265	20010328
AB	A liq.-discharging app. for producing a probe carrier is provided, which is capable of responding to the cases where many kinds of probe solns. are supplied to a discharging part without making the app. a bigger size. An app. for producing a probe carrier using this liq.-discharging app. is provided. A method is also provided for producing a probe carrier using these apparatuses. A pitch for arranging a supply port to a liq.-accommodating part obtained resp. from multiple no. of liq.-discharging parts installed in the liq.-discharging app. in response to multiple probes is made larger than a pitch for arranging a nozzle opening, and thereby, the degree of freedom is raised in designing the configuration position or capacity of the liq.-accommodating part for accommodating the probe soln. Diagrams describing the app. assembly are				

given.

L51 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:748291 HCAPLUS

DN 137:259601

TI Liquid-discharging apparatus for producing probe carrier, and its use in apparatus for producing probe carrier

IN Udagawa, Kenta; Hirosawa, Toshiaki

PA Canon Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002286734	A2	20021003	JP 2001-93263	20010328
AB	A liq.-discharging app. for producing a probe carrier is provided, which possesses the constitution with which a probe liq. with a stable concn. is maintained in a liq.-accommodating part, and an advantage with an app. using a liq.-discharging system is effectively demonstrated without reducing a probe carrier prodn. efficiency. In case where the liq.-accommodating part for accommodating the probe soln. in the liq.-discharging app. possesses an opening for supplying the probe soln., this opening is covered with a lid component, or a region connected with the opening is made a closed space, so that the increase in concn. or viscosity due to the water evapn. from the probe soln. inside the liq.-accommodating part is prevented. Diagrams describing the app. assembly are given. Diagrams describing the app. assembly are given.				

L51 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:748290 HCAPLUS

DN 137:259600

TI Apparatus and method for producing probe carrier

IN Miyazaki, Kyota; Hirosawa, Toshiaki

PA Canon Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002286733	A2	20021003	JP 2001-93262	20010328
AB	An app. for producing a probe carrier is provided, with which many kinds of probe solns. are discharged without making the app. a bigger size. The app. possesses a liq.-delivering app. for delivering multiple probe solns. resp. contg. one of the multiple probes, and a carrier support stand for supporting the carrier. With this app., the probe carrier on which multiple kinds of probes are arranged is produced by delivering the probe soln. from the liq.-delivering app. onto the carrier. The app. possesses a cap and a suction app. as a discharging means for sucking the probe soln. supplied into the liq.-delivering app. to the outside and discharging it. Diagrams describing the app. assembly are given.				

L51 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:721974 HCAPLUS

TI Method and apparatus for providing ink container extraction characteristics to a printing system

IN Olsen, David; Heim, Rory A.; Otis, David R., Jr.

PA Hewlett-Packard Company, USA

SO U.S.

CODEN: USXXAM

DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6454381	B1	20020924	US 2001-843895	20010427
AB	The present disclosure relates to a replaceable ink container for providing ink to an inkjet printing system. The inkjet printing system has a plurality of print modes with each print mode having an ink usage rate assocd. therewith. The replaceable ink container includes an information storage device contg. print mode control information. The installation of the replaceable ink container into the inkjet printing system allows the print mode control information to be provided to the inkjet printing system. This print mode control information is used by the printing system for selecting a print mode from the plurality of print modes based on available ink within the replaceable ink container.				

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1996			EP 0691207 A2	
Anon	1996			EP 0720916 A2	
Anon	1997			EP 0789322 A2	
Anon	2000			EP 0721171 B1	
Anon	2001			WO 0132431 A1	
Baker	1988			US 4771295 A	
Berger	1997			US 5620641 A	
Castle	2000			US 6109723 A	
Gilliland	1990			US 4961088 A	
Hilton	2000			US 6158837 A	
Hirata	1992			US 5146236 A	
Murray	1997			US 5610635 A	
Ujita	1996			US 5506611 A	

L51 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:707611 HCAPLUS

TI Recycling decision system and recycling referee method of **cartridge** and **cartridge** for printer. [Machine Translation].

IN Shinkai, Michinori

PA Canon Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002264435	A2	20020918	JP 2001-62778	20010307
AB	[Machine Translation of Descriptors]. As it is possible, to decide the possibility of recycling automatically on the basis of the information and the like regarding use start date and the printing quantity etc. which are made to remember to the memory section of the <b>cartridge</b> it can manage it can judge the possibility of recycling the <b>cartridge</b> and the life of the <b>cartridge</b> itself furthermore with with the cost and human strength of the necessary minimum efficient application of the environmental resource is assured. It reads out the information of use start date and the printing use quantity etc. which are remembered in the memory section which is built in to the particular <b>cartridge</b> at the time of the recycling decision processing of the <b>cartridge</b> which installation and removal unrestrictedly is installed vis-a-vis the printer itself, judging whether no the information which reads out exceeds specified value, whether or not the particular <b>cartridge</b>				

recycling possibility it decides. It is possible, to decide the possibility of recycling automatically efficiently, it is possible to assure the efficient application of the environmental resource.

L51 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:689797 HCAPLUS

DN 137:228884

TI Liquid-discharging apparatus for manufacturing probe carrier, probe carrier-manufacturing apparatus using the liquid-discharging apparatus, and method for manufacturing probe carrier

IN Kaneko, Mineo; Watanabe, Hidenori

PA Canon Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002257694	A2	20020911	JP 2001-55970	20010228
AB	A method for manufg. a probe array is provided, with which a spot is surely formed on a carrier from each of multiple kinds of probe solns. An app. used for this method is also provided. Multiple no. of liq.-discharging parts necessary for manufg. the probe array are installed to the liq.-discharging app., and each liq.-discharging part is constituted by forming a discharging opening group consisting of multiple discharging openings (nozzles) commonly installed to one liq. accommodation part. The app. is designed and controlled in a way that an identical probe soln. is successively provided from multiple discharging openings belonging to an identical discharging opening group to an identical spot formation position repeatedly upon supplying the probe soln. onto the carrier. Diagrams describing the app. assembly are given.				

L51 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:686719 HCAPLUS

DN 137:213174

TI Method for manufacturing probe carrier using liquid-discharging apparatus, and apparatus used in this method

IN Okamoto, Hisashi

PA Canon Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002257836	A2	20020911	JP 2001-55971	20010228
AB	A method for manufg. a probe array is provided, with which a spot is surely formed on a carrier from each of multiple kinds of probe solns. An app. used for this method is also provided. Multiple no. of liq.-discharging parts necessary for manufg. the probe array are installed to the app., and each liq.-discharging part is constituted by forming a discharging opening group consisting of multiple discharging openings (nozzles) commonly installed to one liq. accommodation part. The app. is designed and controlled in a way that an identical probe soln. is successively provided from multiple discharging openings belonging to the identical discharging opening group in an identical well repeatedly upon supplying the probe soln. onto the multiple wells installed on the carrier. Diagrams describing the app. assembly are given.				

L51 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:644963 HCAPLUS

DN 137:165790  
 TI Liquid-ejecting apparatus for probe liquid ejection  
 IN Kiyota, Wataru  
 PA Canon Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002238543	A2	20020827	JP 2001-42343	20010219
AB	A liq.-ejecting app. for probe liq. ejection is provided, with which the probe spots are surely and accurately formed on a carrier by performing the liq. ejection under the secure state not to generate a non-ejection of the liq. while utilizing the advantage of the procedure of forming the probe spots by ejecting a liq. toward the specified positions on the carrier. Upon forming the spots of probe liq. on the carrier by ejecting a liq. of probe soln. from multiple ejection openings on a liq. ejection unit to manuf. an immobilized probe chip, a preliminary ejection from each ejection opening is performed, and the ejection openings with non-ejection are detd. by evaluating the ejection state by optically detecting the liq. ejected. An ejection-recovering operation is performed on such non-ejection openings, and the liq. is provided from each ejection opening onto the carrier for prepg. the immobilized probe chip according to the detd. pattern. Diagrams describing the app. assembly are given.				

L51 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2002:475750 HCAPLUS  
 TI Independent description selector apparatus and method  
 IN Frederiksen, Dellas G.; Dunlap, Kendra  
 PA Hewlett-Packard Company, USA  
 SO U.S.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6411787	B1	20020625	US 2001-800845	20010306
AB	An independent description selector (10) includes, in a mopier/copier for making a copy of an original, an independent original selector device (16) for selection of parameters (18) describing the original (14). An independent copy selector device (20) is provided for the selection of parameters (22) describing the copy (12). In a preferred embodiment, an input device (88) is connected to the original selector (16) and to the copy selector (20) for adding (90). In a further embodiment, an audio/visual device (76) is connected to the mopier/copier so that parameters (18and22) are audibly (78) and visually (80) described as selected.				

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Ando	1999			US 5999767 A	
Anon	1999			JP 11194669	
Barrett	1999			US 5880727 A	
Downing	2000			US 6075925 A	
Fresk	2000			US 6026258 A	

L51 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2002:345975 HCAPLUS  
 DN 136:321726



TI Solvent for biopolymer synthesis, solvent microdroplets, and methods of use  
 IN Blanchard, Alan P.  
 PA University of Washington, USA  
 SO U.S., 42 pp., Cont.-in-part of U.S. Ser. No. 8,120.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6384210	B1	20020507	US 2000-381487	20000313
	US 6028189	A	20000222	US 1997-821156	19970320
	US 6419883	B1	20020716	US 1998-8120	19980116
	WO 9841531	A2	19980924	WO 1998-US5483	19980320
	WO 9841531	A3	19990916		
	W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 2001018512	A1	20010830	US 2001-817491	20010326
PRAI	US 1997-821156	A2	19970320		
	US 1998-8120	A2	19980116		
	WO 1998-US5483	W	19980320		
	US 2000-510270	B1	20000222		

OS MARPAT 136:321726

AB The invention concerns a method of biopolymer, esp. oligonucleotide, synthesis, along with the solvents and app. involved. The method consists of coupling a first nucleotide to a second nucleotide in a high surface tension solvent. The invention also provides microdroplets of a soln. comprising a solvent having a b.p. of 150o C or above, a surface tension of 30 dynes/cm or above, and a viscosity of 0.015 g/(cm)(sec), e.g., propylene carbonate. Such microdroplets are useful for the synthesis of chem. species, particularly biopolymers such as oligonucleotides and peptides, as well as arrays of chem. species. An automated system for oligonucleotide synthesis is described, which comprises delivery of microdroplets by inkjet technol. and computer control of the process. The high surface tension solvent used is selected for compatibility with the inkjet technol. Diagrams describing the app. assembly and operation are given.

# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Ackley	1998			US 5733509 A	HCAPLUS
Agrawal	1992			US 5149798 A	HCAPLUS
Andrus	1991			US 5047524 A	HCAPLUS
Anon	1984			JP 59024244 A	HCAPLUS
Anon	1989			WO 8910977	HCAPLUS
Anon	1990			WO 9000626	HCAPLUS
Anon	1992			WO 9210588	HCAPLUS
Anon	1993			WO 9317126	HCAPLUS
Anon	1994			WO 9401215	
Anon	1994			WO 9427719	HCAPLUS
Anon	1995			WO 9511748	HCAPLUS
Anon	1995			WO 9525116	HCAPLUS
Anon	1995			WO 9535505	HCAPLUS
Anon	1997			FR 2747692	HCAPLUS
Anon	1997			WO 9719749	HCAPLUS

Anon	1997			WO 9744134	HCAPLUS
Anon	1998			WO 9810858	HCAPLUS
Anon	1998			WO 9825944	HCAPLUS
Atkinson	1984		35	Oligonucleotide Synt	
Barrett	1993			US 5252743 A	HCAPLUS
Barton	1992			US 5112974 A	HCAPLUS
Barton	1992			US 5157032 A	HCAPLUS
Blackburn	1996			Nucleic Acids in Che	
Blanchard	2000			US 6028189 A	HCAPLUS
Blanchard	1996	11	687	Biosensors & Bioelec	HCAPLUS
Blanchard	1996			Eighth International	
Boettcher	1990			US 4940760 A	HCAPLUS
Brennen	1995			US 5474796 A	HCAPLUS
Brennen	1993		92	Human Genome Program	
Breton	1993			US 5211747 A	HCAPLUS
Chen	1995	23	2661	Nucleic Acids Resear	HCAPLUS
Cozzette	1991			US 5063081 A	HCAPLUS
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Dahl	1987	15	1729	Nucleic Acids Resear	HCAPLUS
Deeg	1995			US 5378638 A	
Frank	1987			US 4689405 A	HCAPLUS
Froehler	1986	14	5399	Nucleic Acids Res	HCAPLUS
Fuji Photo Film Co Ltd	1997			JP 09048938	HCAPLUS
Gait	1984		83	Oligonucleotide Synt	MEDLINE
Gamble	1999			US 5958342 A	
Gamble	1999			US 5981733 A	HCAPLUS
Geysen	1987	102	259	J Immunol Meth	HCAPLUS
Goodchild	1990	1	165	Bioconjugate Chemist	HCAPLUS
Habus	1994	22	4350	Nucleic Acids Resear	HCAPLUS
Hayes	1989			US 4877745 A	
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Kaumaya	1990	29	13	Biochem	HCAPLUS
Khrapko	1996			US 5552270 A	HCAPLUS
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Kleinfeld, D	1988	8	4098	J Neurosci	HCAPLUS
Kyser	1981	7	73	J Appl Photographic	
Lam	1991	354	82	Nature	HCAPLUS
Lemmo	1997	69	543	Anal Chem	HCAPLUS
L'Opez	1993	260	647	Science	HCAPLUS
Maskos	1992	20	1679	Nucleic Acids Res	HCAPLUS
Maskos	1993	21	2267	Nucleic Acids Res	HCAPLUS
McBride	1983	24	245	Tetrahedron Lett	HCAPLUS
Mier	1993			US 5212050 A	HCAPLUS
Miller	1990	1	187	Bioconjugate Chemist	HCAPLUS
Nishioka	1994			US 5318679 A	HCAPLUS
Nishioka	1995			US 5449754 A	HCAPLUS
O'Donnell-Maloney	1996	13	151	Genetic Analysis:Bio	HCAPLUS
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Pirrung	1992			US 5143854 A	HCAPLUS
Ramalho				Introduction to Soli	
Raybuck	1998			US 5763170 A	
Southern	1995			US 5436327 A	HCAPLUS
Southern	1997			US 5700637 A	HCAPLUS
Southern	1992	13	1008	Genomics	HCAPLUS
Southern	1994	22	1368	Nucleic Acids Res	
Takahashi	1986	80	38	NEC Res And Develop	
van Ness	1992			US 5124444 A	HCAPLUS
Weiler	1996	243	218	Anal Biochem	HCAPLUS
Wen	1998			US 5792380 A	HCAPLUS
Xu	1996	24	1602	Nucleic Acids Resear	HCAPLUS

L51 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:341792 HCAPLUS

TI **Cartridge** and printer for printer. [Machine Translation].

IN Koyama, Minoru

PA Seiko Epson Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002127460	A2	20020508	JP 2000-326070	20001025
AB	[Machine Translation of Descriptors]. It installs memory in the ink <b>cartridge</b> , the occasion where it manages the ink, among the information which are housed in said memory being eliminated, it prevents the disappearance of the information which is troubled. Because the memory memory 11 inside 11 which is installed in <b>cartridge</b> itself 10 and memory 12 consisted, entry is not possible from memory controller 20B. Because of that, being eliminated, if you write the data which is troubled to memory 11 beforehand, there are no times when that data is eliminated with memory controller 20B.				

L51 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:292048 HCAPLUS

DN 136:306381

TI Liquid-discharging apparatus, and its use in microarray-producing apparatus

IN Takahashi, Masaya

PA Olympus Optical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002116205	A2	20020419	JP 2000-310268	20001011
AB	A liq.-ejecting app. is provided, with which a minute quantity of liq. is discharged, and a nozzle blocking is rarely generated. The app. comprises a liq.-holding component possessing a discharge opening and a driving means for generating a discharge pressure to discharge a minute quantity of the liq. held with the liq.-holding component. The discharge opening is constituted with an opening part facing an outer atm., and a micro-hole with a cross-sectional area smaller than that of the opening part. Diagrams describing the app. assembly are given.				

L51 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:268451 HCAPLUS

DN 136:275656

TI Method and apparatus for discharging small amount of liquid and method and apparatus for manufacturing microarrays

IN Takahashi, Masayaa

PA Olympus Optical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002104595	A2	20020410	JP 2000-303749	20001003

AB A method for discharging liq., e.g. contg. nucleic acid probes, ligands, receptors, oligopeptides, enzymes, enzyme substrates, antigens, antibodies, etc., onto a substrate, involves (1) sucking the liq. from a 1st and 2nd openings of a liq.-holding material and (2) discharging a very small amt. (0.01 nL-0.3 mL) of the liq. held in the material only from the 1st opening. App. for the method comprises (A) a liq.-holding material having a 1st opening that has cross-sectional area decreasing toward the discharge direction and a 2nd opening that has cross-sectional area increasing toward the discharge direction and (B) a driving mean which generates pressure to discharge the liq. Also claimed are method and app. to manuf. microarrays by apply liq. contg. a probe capable of binding with a target substances on a substrate using the above discharge app. The method shortens the time for sucking liq., thus increasing throughput of.

L51 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:263928 HCAPLUS

TI Ink container with ink level gauge

IN Taylor, Bret; Ward, Jefferson P.

PA Hewlett-Packard Company, USA

SO U.S., 9 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6367919	B1	20020409	US 2000-615155	20000713

AB An ink container for an inkjet printer includes a body having a first ink chamber. The body also has a second ink chamber, with a fluid passage connecting the chambers. The second ink chamber has an elongated capillary portion with a light transmissive window revealing the presence of ink in the capillary portion. The first ink chamber is the primary ink storage chamber, and contains an ink-retaining foam element that contacts a capillary feature of the passage. The foam is compressed at one portion to provide a capillarity gradient, and the second chamber capillary has a capillary gradient.

# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Allen	1990			US 4973993 A	
Anon	1998			JP 10100433 A	
Carlotta	1998			US 5742312 A	
Evans	1977			US 4038650 A	
Fling	1991			US 5054319 A	
Hara	1997			US 5616929 A	
Ishida	1990			US 4938590 A	
Jordan	1940			US 2190027 A	
Kawai	1997			US 5652610 A	
Keller	1984			US 4443699 A	
Keller	1985			US 4544840 A	
Koimumi	1994			US 5329304 A	
Mohr	1992			US 5079570 A	
Suzuki	1990			US 4969759 A	
Waseda	1995			US 5453771 A	
Wostl	1969			US 3448616 A	

L51 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:228925 HCAPLUS

TI The supply cartridge and the image formation device which has that. [Machine Translation].

IN Sasaki, Koki

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002086755	A2	20020326	JP 2000-282123	20000918
AB	[Machine Translation of Descriptors]. In the image formation device, try to be able to grasp the exchange time of the supply <b>cartridge</b> accurately. Supply <b>cartridge</b> 30 is made installation and removal exchange unrestricted vis-a-vis the image formation device itself. The receipt device 32 which receives recording media 34 and, the 1st image visualization medicine which is received the adhesion device 37 which comes in contact with the recording media and, the receipt device it provides with the removal device 45 which removes the 1st image visualization medicine from on 50 which receives the 2nd image visualization medicine and the recording media in the supply <b>cartridge</b> . And, in recording media conveying road P amount used inspection expedient 43 of the recording media, amount used inspection expedient 39 of the 1st image visualization medicine, amount used inspection expedient 54 of the 2nd image visualization medicine is had for receipt device 50 in adhesion device 37. In addition, collection quantitative inspection expedient 48 of the 1st image visualization medicine is provided in removal device 45.				

L51 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:767926 HCAPLUS

TI Printhead substrate having an ink jet primitive structure that spans both edges of an ink feed channel

IN Torgerson, Joseph M.; Bakkom, Angela White; Mackenzie, Mark H.

PA Hewlett-Packard Company, USA

SO U.S., 14 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6305774	B1	20011023	US 2000-548899	20000413
AB	An ink jet printhead having a first plurality of ink drop generators disposed along a first edge of an ink feed slot, and a second plurality of ink drop generators disposed along a second edge of the ink feed slot that is opposite the first edge. The ink drop generators are arranged in a plurality of groups called primitives, and each primitive includes a first subgroup of ink drop generators disposed along the first edge and a second subgroup of ink drop generators along second edge, whereby the first subgroup of each primitive includes a subset of the first plurality of ink drop generators and whereby the second subgroup of each primitive includes a subset of the second plurality of ink drop generators. In this manner each primitive is bifurcated across said ink feed slot. The ink jet printhead further includes a third plurality of ink drop generators disposed along one edge of the printhead and a fourth plurality of ink drop generators disposed along another edge of the printhead that is opposite the first edge.				

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Allen	1995			US 5469199	
Garcia	1994			US 5317346	
Hess	1988			US 4719477	HCAPLUS
Keefe	1997			US 5604519	

Keefe |1997 | | |US 5638101 |  
 Leshner |1971 | | |US 3568171 |

L51 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:730611 HCAPLUS

DN 135:287585

TI Microfluid components and method for the surface treatment thereof

IN Stelzle, Martin

PA Nmi Naturwissenschaftliches Und Medizinisches Institut An Der Universitaet  
 Tuebingen, Germany

SO PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001072423	A1	20011004	WO 2001-EP3032	20010316
	W: JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	DE 10015380	A1	20011011	DE 2000-10015380	20000328

PRAI DE 2000-10015380 A 20000328

AB A method for the surface treatment of a microfluid component is disclosed, comprising at least one channel for guiding a fluid, which terminates in an opening through which the fluid can be dispensed. The microfluid component is coated on the external surface, in the region of the tip, whereby the external surface is treated with a surface-active fluid, while simultaneously being flushed from the inside out with a non-surface-active fluid, i. e., an inert gas, which escapes through the opening. A selective coating of the external surface can thus be achieved in order to make the surface hydrophobic. Conversely the microfluid component can be made selectively hydrophilic on the inner surface, while the external surface is flushed in an inert gas.

#### RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Badesha, S	1993			US 5212496 A	
Univ California	2000			WO 0024511 A	HCAPLUS
Xerox Corp	1998			EP 0882593 A	

L51 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:423706 HCAPLUS

TI Ink jet printing mechanism

IN Silverbrook, Kia

PA Silverbrook Research Pty Ltd, Australia

SO U.S., 33 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6244691	B1	20010612	US 1998-113084	19980710
PRAI	AU.1997-8044	A	19970715		

AB This patent describes an ink jet printer which ejects drops on demand by activating a permanent magnetic piston located above a nozzle chamber. An activation coil is located adjacent to the magnetic piston and applies a force to the piston sufficient to cause movement of the piston resulting in the ejection of ink. Torsional springs attached to the magnetic piston cause the piston to return to a quiescent condition upon deactivation of the activation coil.

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1993			JP 405318724 A	
Anon	1993			DE 4139731	
Jet-Line Ab	1997			SE 9601403 A	
Kniepkamp	1989			US 4819009	
Mielke	1988			US 4737802	

L51 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:319586 HCAPLUS

DN 134:323104

TI Apparatus and method for deposition and inspection of chemical and biological fluids

IN Fisher, William D.; Martins, Henrique A. S.; Webb, Peter G.

PA Agilent Technologies Inc, USA

SO Eur. Pat. Appl., 12 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1096250	A2	20010502	EP 2000-122715	20001018
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI	US 1999-429895	A	19991029		
AB	An app. and method are provided for producing and inspecting a plurality of deposited features in a pattern on a portion of a substrate surface, as in an oligonucleotide array. The app. comprises a print-head for depositing a fluid to form the array of features on the substrate surface and a camera for imaging the deposited features. The app. also comprises a print-head controller for positioning and activating the ink-jet print-head to deposit the array features. The camera, e.g., a digital line scan camera, is controlled by a camera controller such that the camera acquires images corresponding to substantially only the portion of the surface on which features should have been deposited. The camera and print-head are preferably situated such that an induced movement of the print-head relative to the substrate results in a substantially identical corresponding movement of the camera. Optionally, the app. further comprises means for comparing an image acquired by the camera with a predetd. std. to produce a signal.				

L51 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:294915 HCAPLUS

DN 134:306131

TI Method of performing array-based hybridization assays using thermal inkjet deposition of sample fluids

IN Caren, Michael P.; Luebke, Kevin J.

PA Agilent Technologies, Inc., USA

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6221653	B1	20010424	US 1999-300589	19990427
	US 2001016322	A1	20010823	US 2001-819923	20010326
PRAI	US 1999-300589	A1	19990427		
AB	Methods are provided for depositing a quantity of fluid onto the surface of an array. In the subject methods, a thermal inkjet head loaded with				

the fluid is positioned in opposing relationship to, e.g. over, the array surface. Actuation of the thermal inkjet results in the expulsion of a quantity of fluid onto the array surface. The subject methods find particular use in array-based binding assays in which an array of binding agents is employed for the detection of an analyte(s), particularly array-based hybridization assays.

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Brennan	1995			US 5474796	HCAPLUS
Buonanno	2000			US 6070969	
Deeg	1994			US 5338688	
Gamble	1999			US 5958342	
Gamble	1999			US 6001309	HCAPLUS
Hayes	1989			US 4877745	
Hayes	1997			US 5658802	HCAPLUS
Nishioka	1995			US 5449754	HCAPLUS
Southern	1997			US 5700637	HCAPLUS

L51 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:261885 HCAPLUS

TI Detection method and device and system and **cartridge** and memory medium of consumable stores refilling **cartridge**. [Machine Translation].

IN Ito, Yoshihiro; [NAME NOT TRANSLATED], Kazuo; Watanabe, Takeshi

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001100599	A2	20010413	JP 1999-280466	19990930
AB	[Machine Translation of Descriptors]. Detect the improper <b>cartridge</b> where can refill the consumable stores of the toner and the ink et cetera. The toner room which fills up the toner is provided in the <b>cartridge</b> . When while using the <b>cartridge</b> , is judged as the toner being cut off, the empty information is written to <b>cartridge</b> memory. After adding the toner in the <b>cartridge</b> which becomes the toner being cut off, when loads to the printer true form, <b>cartridge</b> memory the empty information which was written reads out. When the empty information reads out, is judged, that it is an improper <b>cartridge</b> where refilling the toner is done the warning disclosure and print prohibition are done. With the proper <b>cartridge</b> where the empty information is not written, normal print is done.				

L51 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:238026 HCAPLUS

DN 134:273581

TI Dual chamber single actuator ink jet printing head

IN Silverbrook, Kia

PA Silverbrook Research Pty., Ltd., Australia

SO U.S., 41 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6209989	B1	20010403	US 1998-112813	19980710



PRAI AU 1997-873 A 19971212

AB An app. for ejecting fluids from a nozzle chamber includes a nozzle chamber having .gtoreq.2 fluid ejection apertures defined in the walls of the chamber; a moveable paddle vane located between the fluid ejection apertures; an actuator mechanism attached to the moveable paddle vane and adapted to move the paddle vane in a first direction so as to cause the ejection of fluid drops out of a first fluid ejection aperture and to further move the paddle vane in a second alternative direction so as to cause the ejection of fluid drops out of a second fluid ejection aperture. The actuator can comprise a thermal actuator having .gtoreq.2 heater elements with a first of the elements being actuated to cause the paddle vane to move in a first direction and a second heater element being actuated to cause the paddle vane to move in a second direction. The heater elements preferably have a high bend efficiency. The paddle vane and the actuator can be joined at a fulcrum pivot point, the fulcrum pivot point having a thinned portion of the nozzle chamber wall. The actuator can include one end fixed to a substrate and a second end contg. a bifurcated tongue having 2 leaf portions on each end of the bifurcated tongue the leaf portions interconnecting to a corresponding side of the paddle with the tongue such that, upon actuation of the actuator, one end of the leaf portions pulls on the paddle end.

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Anon	1992			JP 404001051	

L51 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:612487 HCAPLUS

TI Replaceable **cartridge** for a printer including resident memory with storedmessage triggering data

IN Benjamin, Trudy; Childers, Winthrop D.; Axtell, James P.; Bullock, Michael L.; Christensen, Kerry Trent

PA Hewlett-Packard Company, USA

SO U.S., 11 pp., Cont.-in-part of Ser. No. US 1996-651221, filed on 22 May 1996, now

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6113208	A	20000905	US 1997-856262	19970514
PRAI	US 1996-651221	A2	19960522		
	US 1997-845800	A2	19970425		

AB A method for controlling an inkjet apparatus employs a pluggable module which includes a memory, the inkjet apparatus being connected to a computer/display arrangement. The method includes the steps of determining when the pluggable module has been installed in the inkjet apparatus; determining if a printer driver indication in the module memory notes a newer driver procedure than the current driver procedure being used with the inkjet apparatus; and if yes, displaying a message indicating availability of the newer driver procedure. The method further enables the occurrence of a low ink indication from a pluggable ink module to automatically cause the display of a reorder message. The method also enables any selected message included in the memory to be automatically displayed upon insertion of the pluggable module.

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Anon	1993			EP 0541064 A2	
Anon	1993			EP 0743567 A2	

Anon	1995		JP 07227971	
Anon	1995		JP 07322032	
Anon	1996		EP 0720916 A2	
Anon	1996		WO 9605061	
Arthur	1991		US 5049898	
Christensen	1997		US 5682140	
Gilliland	1990		US 4961088	
Hillmann	1994		US 5365312	
Hirst	1999		US 5930553	
Honda	1989		US 4803521	
Kanemitsu	1985		US 4551000	
Kurando	1993		US 5184181	
Lesueur	1993		US 5272503	
Murray	1997		US 5610635	
Ujita	1992		US 5138344	
Ujita	1996		US 5506611	
Wakabayashi	1995		US 5410641	
Yamaguchi	1991		US 5021828	

L51 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:249048 HCAPLUS

DN 130:264419

TI Ink-jet printing in manufacture of microsensor devices

IN Fukushima, Hitoshi; Shimoda, Tatsuya; Morgan, Hywel

PA Seiko Epson Corporation, Japan; The University Court of the University of Glasgow

SO Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 908725	A1	19990414	EP 1998-307968	19980930
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	CA 2248517	AA	19990330	CA 1998-2248517	19980930
	US 2001044177	A1	20011122	US 2001-870588	20010601
PRAI	JP 1997-266225	A	19970930		
	US 1998-163199	A3	19980930		

AB An object of this invention is to provide a method of forming mol. recognizing films on sensor electrodes efficiently, within a short period of time, uniformly, and in a high quality state. Another object of this invention is to provide a method of accurately and efficiently introducing a vast no. of biol. samples for evaluation to the plural minute sensor electrode dots within a short period of time. In order to form org. thin films on electrodes, a soln. of a material for the org. thin film is accurately printed via an ink-jet onto the surface of microelectrodes as required, thereby producing a high d. array of microelectrodes. Further, a soln. of a sample substance or a liq. substance to be sensed is ejected into air via an ink-jet nozzle to fall to the surface of org. thin membranes on the microelectrodes so that the sample is evaluated.

## RETABLE

Referenced Author (RAU)	Year   (RPY)	VOL   (RVL)	PG   (RPG)	Referenced Work (RWK)	Referenced File
Boeegh, P	1989			WO 8905567 A	
Boehringer Mannheim Gmb	1992			EP 0469445 A	
Ecossensors Ltd	1991			WO 9108474 A	HCAPLUS
Newman	1992			ANALYTICA CHIMICA AC	
O'Donnell-Maloney, M	1996  13	151		GENETIC ANALYSIS: BI	HCAPLUS
Plotkin	1997  43	2187		CLINICAL CHEMISTRY	HCAPLUS
Williams, S	1996			WO 9600385 A	HCAPLUS

Wollongong Uniadvice |1990 | | |WO 9002829 A |HCAPLUS

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L107 ANSWER 1 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2002-659847 [71] WPIX

DNN N2002-521496 DNC C2002-185591

TI Precision liquid dispenser e.g. for ink-jet printer has ejector  
plate and moulded polymer one-piece plate and spacer.

DC A32 A97 B04 D16 P42 P75 T04

IN BALERAS, F; BRUNET, M C; FOUILLET, Y

PA (COMS) COMMISSARIAT ENERGIE ATOMIQUE

CYC 1

PI FR 2816525 A1 20020517 (200271)\* 26p B05B015-06

ADT FR 2816525 A1 FR 2001-2580 20010226

PRAI FR 2001-2580 20010226

IC ICM B05B015-06

ICS B05B001-08; B05B001-24; B29C033-42; B29C033-68; B29C065-34;

**B41J002-14**

AB FR 2816525 A UPAB: 20021105

NOVELTY - A precision liquid dispenser, is new.

DETAILED DESCRIPTION - The liquid dispenser consists of an ejector  
plate with at least one outlet (112), a liquid ejection control system  
(116), connected to the plate by a spacer forming a feed channel. The  
plate and spacer are moulded in one piece (110) on a silicon-based matrix  
from a polymer material with a cavity linked to the outlet and a feed  
channel. The control system, which incorporates localized heating  
resistances (118), is contained in a substrate (114) with the moulded  
plate attached to it by a weldable material (144), such as a metal with a  
low melting point, and a sealing fluid (148) introduced between the  
moulded plate and substrate by capillary action.

USE - Precision dispensing of fluids e.g. for controlled  
micro-pipettes, bio-chips, micro-pumps or injectors, coolers for

electronic components or especially ink-jet printers.

ADVANTAGE - The dispenser provides high-resolution in an ink-jet printer, is economical to manufacture and suitable for serial production.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section of part of the liquid dispenser.

One-piece moulded plate 110  
 Outlet 112  
 Substrate 114  
 Control system 116  
 Heating resistance 118  
 Weldable material 144  
 Sealing fluid 148

Dwg.7/10

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-W07F; B11-C03; D05-H02  
 EPI: T04-G02A1

TECH UPTX: 20021105

TECHNOLOGY FOCUS - POLYMERS - The moulded polymer material can be an epoxy adhesive, a polyimide or self-levelling polymer.

L107 ANSWER 2 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2002-637962 [69] WPIX

DNN N2002-504014

TI Replaceable printer component has memory to store interface identifier corresponding to user interface for printing system.

DC P75 P84 T04

IN CHILDERS, W D

PA (HEWP) HEWLETT-PACKARD CO; (CHIL-I) CHILDERS W D

CYC 27

PI EP 1238810 A2 20020911 (200269)\* EN 9p B41J002-175 <--  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI TR

US 2002127020 A1 20020912 (200269) G03G015-00 <--

US 6459860 B1 20021001 (200272) G03G015-00 <--

ADT EP 1238810 A2 EP 2002-251493 20020304; US 2002127020 A1 US 2001-802507  
 20010308; US 6459860 B1 US 2001-802507 20010308

PRAI US 2001-802507 20010308

IC ICM B41J002-175; G03G015-00

AB EP 1238810 A UPAB: 20021026

NOVELTY - A memory (28) stores an interface identifier (38) corresponding to a user interface (36) for the printing system (12). A communication link (30) performs communication between memory and printer controller (20) when the replaceable component (22) is installed in the printing system.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for printing arrangement.

USE - Replaceable printer component.

ADVANTAGE - By including interface identifier in memory, replaceable components can be designed to achieve different printing objectives.

DESCRIPTION OF DRAWING(S) - The figure shows the schematic illustration of printing arrangement.

Printing system 12

Printer controller 20

Replaceable component 22

Memory 28

Communication link 30

User interface 36

Interface identifier 38

Dwg.1/2

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-G10A

L107 ANSWER 3 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 2002-567968 [61] WPIX  
 DNN N2002-449621 DNC C2002-161154  
 TI Drop ejector unit testing method, in multi-ejector system, involves scanning substrate to check whether each substrate is ejected with fluid, based on which fluid filling condition of ejector unit is determined.  
 DC B04 J04 P75  
 IN BRUCE, R H; ELROD, S A; HADIMIOGLU, B B; HORINE, D A; NOOLANDI, J  
 PA (XERO) XEROX CORP  
 CYC 27  
 PI EP 1208912 A2 20020529 (200261)\* EN 24p B01L003-02  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI TR  
 JP 2002236128 A 20020823 (200271) 13p G01N035-00 <--  
 ADT EP 1208912 A2 EP 2001-126952 20011113; JP 2002236128 A JP 2001-354720  
 20011120  
 PRAI US 2000-718733 20001122  
 IC ICM B01L003-02; G01N035-00  
 ICS B01J019-00; B41J002-00; G01N001-00;  
 G01N035-10; G01N037-00  
 AB EP 1208912 A UPAB: 20020924  
 NOVELTY - The fluid filled in the vacuum nozzle in the priming system is ejected on the test substrates by reverse vacuum operation. The substrates are scanned to check whether each substrate is ejected with fluid, based on which the fluid filling condition of ejector unit is determined.  
 USE - For testing drop ejector units in multi-ejector system used for biological assay such as DNA, proteins.  
 ADVANTAGE - By testing drop ejector units, the biofluid loading and proper ejection operations are verified, and contamination and cross contamination are avoided, with improved operation efficiency.  
 DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of reagent **cartridge** inserted within acoustic drop ejection mechanism.  
 Dwg.1/20  
 FS CPI GMPI  
 FA AB; GI; DCN  
 MC CPI: B04-E01; B04-N04; B11-C08; B12-K04; J04-B01

L107 ANSWER 4 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 2002-556725 [59] WPIX  
 CR 2002-105193 [14]  
 DNN N2002-440646 DNC C2002-157806  
 TI Fabricating an array of biopolymers on a substrate using a dispensing head comprising reservoir and jets having delivery chamber that has orifice with biopolymer/biomonomer fluid.  
 DC B04 D16 P42 P75 S03  
 IN CAREN, M P; SCHEMBRI, C T; WEBB, P G  
 PA (CARE-I) CAREN M P; (SCHE-I) SCHEMBRI C T; (WEBB-I) WEBB P G  
 CYC 1  
 PI US 2002064889 A1 20020530 (200259)\* 14p G01N033-543 <--  
 ADT US 2002064889 A1 Cont of US 1999-302922 19990430, US 2001-59957 20011126  
 PRAI US 1999-302922 19990430; US 2001-59957 20011126  
 IC ICM G01N033-543  
 ICS B05D003-00; B41J002-15  
 AB US2002064889 A UPAB: 20020916  
 NOVELTY - Fabricating an array of biopolymers on a substrate using a dispensing head (DH) with biopolymer or biomonomer fluids (F), where (DH) has reservoir chamber (RC) and multiple jets including respective delivery chambers (DCs) communicating with same (RC), where (DC) has an orifice (O) and ejector, involves loading (F) through (O) into (RC) communicating with (O).

DETAILED DESCRIPTION - Fabricating an array of biopolymers on a substrate, involves loading (M) a dispensing head with a biopolymer or biomonomer containing fluid (F), where the dispensing head has a reservoir chamber (RC) and multiple jets which can dispense droplets onto a substrate and includes respective delivery chambers (DC) communicating with the same (RC), each (DC) having an orifice and an ejector which, when activated, causes a droplet to be ejected from the orifice (O), involves loading the fluid through an orifice into a reservoir chamber communicating with the orifice, and loading (F) which has entered the (RC) through an (O) into other delivery chambers communicating with the same reservoir chamber.

An INDEPENDENT CLAIM is also included for an apparatus (I) for fabricating an array (12) of biopolymers on a substrate (10), comprising:

- (a) a substrate station on which the substrate can be mounted;
- (b) a dispensing head having a reservoir chamber, at least one jet which can dispense droplets onto a substrate, where the jet includes a capillary delivery chamber communicating with the reservoir chamber, and the capillary delivery chamber has an orifice and an ejector which, when activated, causes a droplet to be ejected from the orifice;
- (c) a cleaning station which is spaced from the substrate station, and which provides a cleaning fluid for the head;
- (d) a positioning system to selectively position the head facing any one of the stations;
- (e) a pressure source to provide to the reservoir chamber, when the head is facing the cleaning station, a holdoff pressure which is sufficiently positive to prevent cleaning fluid contacting the orifice from entering the delivery chamber; and
- (f) a processor which causes the pressure source to provide the holdoff pressure when the head is facing the cleaning station.

USE - (M) is useful for loading a dispensing head with a biopolymer or biomonomer containing fluid. (I) is useful for fabricating an array of biopolymers on a substrate using a dispensing head with biopolymer or biomonomer fluids, where the fluid is a polynucleotide containing fluid, or contains amino acid polymers, by loading the head through orifices of the jets with biopolymer or biomonomer fluids, positioning the head with the orifices facing the substrate, dispensing multiple droplets from the head orifices so as to form an array of droplets on the substrate, positioning the head with the orifices facing a cleaning station which is spaced from the substrate, exposing the head about the orifices to a cleaning fluid from the cleaning station, and repeating the above mentioned steps to form the array (claimed). (I) is useful for fabricating biopolymer arrays, particularly polynucleotide arrays such as DNA arrays, which are useful in diagnostic, screening, and gene expression analysis. (I) is useful for depositing biopolymers or other functional groups on surfaces of any of a variety of different substrates, including both flexible and rigid substrates.

ADVANTAGE - (I) provides for easy loading of the head through the jet orifices, while inhibiting air or other ambient atmosphere entering the orifices after loading to result in loss of prime in the jets. (I) also provides easy purging and cleaning of the jets. (I) provides cleaning of the regions around and outside of the jet orifices without using sprayed liquids, while inhibiting cleaning fluid from entering the jet during the cleaning operation.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of a substrate bearing multiple arrays produced by an apparatus for fabricating an array of biopolymers on a substrate.

Substrate 10

Array 12

Dwg.1/10

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: B04-E01; B04-N04; B11-C08E6; B12-K04; D05-C11;  
D05-H09; D05-H10; D05-H12A

EPI: S03-E13B1

TECH

UPTX: 20020916

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Method: In (M), the fluid is drawn into the delivery and reservoir chambers, where the delivery chambers are capillary delivery chambers and the reservoir is a capillary reservoir. A negative pressure is provided to the reservoir chamber to assist in the drawing of the fluid through the orifice. The head has multiple reservoirs and a set of the multiple jets for each reservoir, and where the loading steps occur at each of multiple reservoirs. Preferred Apparatus: In (I), the head has multiple pulse jets with orifices on a common front face of the head. The cleaning station comprises a pad to carry a cleaning fluid and the positioning system, and when the head is facing the cleaning station, wipes at least one of the head and pad across the other.

L107 ANSWER 5 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2002-522952 [56] WPIX

DNN N2002-413879 DNC C2002-148369

TI Liquid discharge apparatus for genetic testing machine, comprises liquid flow path with tapered micropore of small cross-section at outlet.

DC B04 D16 P75 Q39 S03 S05

PA (OLYU) OLYMPUS OPTICAL CO LTD

CYC 1

PI JP 2002116205 A 20020419 (200256)\* 10p G01N033-53 &lt;--

ADT JP 2002116205 A JP 2000-310268 20001011

PRAI JP 2000-310268 20001011

IC ICM G01N033-53

ICS B41J002-015; B41J002-045; B41J002-055;

B67D003-00; C12N015-09; G01N001-00;

G01N031-22; G01N033-566; G01N037-00

ICA C12M001-00

AB JP2002116205 A UPAB: 20020903

NOVELTY - Liquid discharge apparatus comprising:

(1) a liquid flow path with an outlet with an opening and a tapered micropore, where the micropore has smaller cross-section compared to the opening; and

(2) a piezoelectric element which drives the liquid flow path in a discharge direction, so as to generate a discharge pressure so that a liquid is discharged out, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) microarray manufacturing method which involves using liquid discharge apparatus to discharge trace amount of liquid on a substrate comprising target substance to produce a microarray; and

(2) microarray manufacturing apparatus which has a displacement unit that makes the substrate and the liquid flow path to move relatively.

USE - Used in genetic testing machine, drug inspection machine, hemoanalysis machine and biochemical analysis device.

ADVANTAGE - Clogging of the liquid at outlet of the liquid flow path is prevented and hence the discharge of small amount of liquid is carried out reliably with high precision.

DESCRIPTION OF DRAWING(S) - The figure shows the outline diagram of the liquid discharge apparatus.

Piezoelectric element 32

Liquid flow path 34

Opening 39

Micropore 41

Dwg.1/14

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: B04-E01; B11-C03; B11-C08C; B11-C08E6; B12-K04;

D05-H02; D05-H09

EPI: S03-E14A1; S03-E14H1; S03-E14H4; S05-C01;

S05-C05; S05-C09

L107 ANSWER 6 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 2002-500214 [53] WPIX  
 DNC C2002-141658  
 TI System for dispensing nanoliter sized droplets in defined distribution pattern to form miniarrays comprises print head with pipette-based dispensers, robotic arm for carrying print head and working platform.  
 DC B04 D16 P75 Q39  
 IN SHAFER, D A  
 PA (SHAF-I) SHAFER D A; (GENE-N) GENETAG TECHNOLOGY INC  
 CYC 87  
 PI WO 2002040634 A2 20020523 (200253)\* EN 63p C12N000-00 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW  
 W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD  
 GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
 MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
 UA UG UZ VN YU ZA ZW  
 US 2002074342 A1 20020620 (200253) B41J002-04 <--  
 AU 2002035128 A 20020527 (200261) C12N000-00 <--  
 ADT WO 2002040634 A2 WO 2001-US43918 20011114; US 2002074342 A1 Provisional US 2000-248247P 20001114, US 2001-992516 20011114; AU 2002035128 A AU 2002-35128 20011114  
 FDT AU 2002035128 A Based on WO 2002040634  
 PRAI US 2000-248247P 20001114; US 2001-992516 20011114  
 IC ICM **B41J002-04; C12N000-00**  
 ICS B67D005-08; B67D005-14; C12Q001-68  
 AB WO 2002040634 A UPAB: 20020820  
 NOVELTY - System (S) for dispensing nanoliter-sized droplets on surface in precise pattern of non-overlapping spots to form two-dimensional miniarray assay comprising spotter device (I) with print head (Ia) and pipette-based dispensers (Ib), a robotic/mechanical arm carrying (Ia) and working platform for holding miniarray substrates or loading samples, is new.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:  
 (1) forming (M1) a miniarray where each known location or spot in the miniarray contains an analyte specific reagent for detecting an analyte in a sample involves:  
 (a) aspirating a solution of each analyte specific reagent with (Ib),  
 (b) pressuring a small defined droplet of analyte specific reagent from the narrow opening of the tip of (Ib),  
 (c) touching the droplet to the surface of the miniarray substrate with an action effective to release the droplet, thereby spotting a specific location in the miniarray with a specific volume of the analyte specific reagent, and  
 (d) repeating steps (a)-(c) until the miniarray is fabricated;  
 (2) diagnosing (M2, M3) a specific tissue or condition using specialized diagnostic miniarrays targeted to the analysis of the tissue or condition.  
 USE - (M2) or (M3) are useful for diagnosing a condition using specialized diagnostic miniarrays targeted to the analysis of the tissue or condition such as cancer, responses to an infection, responses to a therapeutic or toxic agent or stages of ageing (claimed). The miniarrays are useful in multi-analyte biological assays and are particularly useful for assessing gene expression profiles based on spotting cDNA or synthetic oligonucleotide samples.  
 ADVANTAGE - The miniarray formed by (M1) achieves a smaller, more condensed distribution by interspersing successive dispensing of reagents onto the array in regions between the spots dispensed previously. By shifting low density or larger format miniarrays, the development and use of low-resolution scanners is enabled. In addition such low density or large format miniarrays further enable the use of less sensitive labeling agents such as simple colored dyes as compared to the present need for



expensive, non-permanent fluorescent labeling agents. The new miniarray instrument format enables ready customization of chips for the research and diagnostics market, eliminates problems of variation and expenses associated with miniaturized equipment, and facilitates development of small inexpensive instruments that can be more widely available for expression analysis. Thus, the miniarray can replace expensive microarrays with cheaper, larger format miniarrays with similar or equivalent diagnostic value. (M1) can also be used to create miniarrays on simple, small format substrate. The novel diagnostic miniarrays are specifically planned and spotted with disease or condition specific patterns built into their organization or arrangement. The presence of gene activity levels predicted for a specific disease, tissue or condition, such as up-regulated, down-regulated or unchanged activity levels, will create a simple recognizable clustered pattern in the array. This new diagnostic invention is enabled by the greater versatility and lower costs.

DESCRIPTION OF DRAWING(S) - The figure shows the mechanically operated pipetter, hydraulic pipetter and air driven pipetter operated remotely by microtubing. The hydraulic or air driven pipettors are typically actuated by stepper motor-driven syringe pumps.

Dwg.1A/9

FS CPI GMPI

FA AB; GI; DCN

MC CPI: B04-B03C; B04-E01; B04-E05; B11-C07; B11-C08E3; B11-C08E5; B11-C08E6;  
**B12-K04A; B12-K04F; D05-H09;**  
**D05-H12D1; D05-H18B**

TECH UPTX: 20020820

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred System: In (S), (Ia) comprises (Ib) that are arranged in at least one row. (Ib) can operate simultaneously to load microliter quantities of sample analyte reagents in solution and to dispense nanoliter quantities of reagent solutions on the surface of the miniarray substrate. (Ib) has disposable tips that can be ejected and replaced automatically, or fixed tips that are cleaned and dried between sample loadings. (II) moves laterally and vertically in relation to the working platform. (Ia) is activated by actuation by remote syringe pumps that provide vacuum or pressure to (Ib), mechanical activation by minute pistons that are fixed to (Ib), or hydraulic activation by remote syringe pumps connected to the pipetter pistons of (Ib).

Preferred Method: (M1) involves:

(A) preparing one or more set of gene specific elements that correspond to genes known to be significantly up-regulated or down-regulated in the tissue or condition relative to control sample;

(B) preparing one or more sets of gene specific elements that correspond to genes commonly expressed in both control sample and in the tissue or the condition;

(C) arranging the gene specific elements of (a) and (b) on a miniarray; and

(D) applying a target sample to the miniarray, where detection of a visually distinct image from the miniarray indicates the presence of the tissue or condition.

(M2) involves:

(A) providing one or more target samples comprising gene expression products;

(B) constructing an addressable miniarray spotted with different binding elements;

(C) providing a set of intermediate probes comprising a specific binding element that binds to a specific gene expression product in a target sample and a generic binding element that binds to a matching binding element spotted on addressable miniarray;

(D) binding the set of intermediate probes to the target sample(s) in solution hybridization conditions, where different target samples are handled separately and intermediate probes capable of binding with different reporter elements are bound to different target samples;

(E) capturing and washing the complex of gene expression products and bound intermediate probes to remove unbound intermediate probes;  
(F) denaturing or removing the gene expression products if necessary to produce a subset of intermediate probes reflecting the gene expression products and their relative frequency in the original sample;  
(G) binding the resulting subset of intermediate probes to the addressable miniarray; and  
(H) examining the binding pattern of subset of intermediate probes, where detection of a visually distinct image from the miniarray indicates the presence of the tissue or condition.

In (M1), after step (c), the tips of (Ib) are preferably replaced or cleaned. (Ib) is arranged in one, or more than one row. The releasing of the droplet of analyte-specific reagent from (Ib) is performed by ejecting sufficient volume from the tip of (Ib) to cause the droplet to release by gravity. The releasing of the droplet is alternately performed by applying electromechanical force to the tip of (Ib) to cause the droplet to release by gravity, where the electromechanical force is vibration, piezoelectric pressure or rapid mechanical actuation. (Ib) is carried by robotically controlled apparatus that provides lateral and vertical motions, thereby automating the loading of multiple reagent samples, the replacement or cleaning of pipette tips and the spotting of multiple miniarrays under programmed instructions. The tips of (Ib) are spaced 9 mm or 4.5 mm center to center to load multiple reagent samples from standard 96 well or 384 well plates. (Ib) is stationary, except for vertical motion, and miniarray substrates and reagent samples are moved under the dispensers by a robotic apparatus that moves under programmed instructions. The miniarray substrate is a coated microscope slides, flexible membranes, rigid glass, plastics, semi-rigid film, paper-based printing substrates, semi-rigid printing materials, photographic paper and high quality computer printing paper. The analyte specific reagent comprises antibodies that bind to selected proteins of the analyte sample, or polynucleotides complementary to sequences of the analyte sample, where the antibodies or polynucleotides are used to detect and measure the relative frequency with which specific genes are expressed in the sample. The analyte sample comprises total ribonucleic acid (RNA), messenger RNA (mRNA), complementary deoxyribonucleic acid (cDNA) probes made from RNA transcripts, intracellular proteins, or secreted proteins. Preferably, two or more analyte sample are labeled differently and compared by competitive binding to the same miniarray to determine relative gene expression levels between samples. The samples are labeled by a means of isotopes, indirect labeling haptens, direct fluorescent reagents, indirect fluorescent reagents, quantum dots or nanogold. In (M2), the total number of gene-specific elements is 10-1000 (preferably 50-300). The genes commonly expressed in both control sample and in the tissue or the condition are common housekeeping genes or tissue specific genes. The target sample comprises expressed RNAs or its nucleic acid copies, and where the gene specific elements spotted on the miniarray or any one of cDNAs, cloned cDNAs, synthetic oligonucleotide or peptide nucleic acids (PNA). The target sample optionally comprises expressed proteins, and where the gene specific elements spotted on the miniarray are subset of specific antibodies. The visually distinct image comprises a pattern such as a pattern that resembles a stoplight with clusters of red, yellow and green spots, alphanumeric characters, an abstract sign, shape or symbol, and a simplified symbol or picture representing a tissue or condition. Preferably, the pattern is distinguished by difference in color, intensity or location within the miniarray. The shape or symbols are triangles, rectangles, squares, circles, ovals, trapezoids, stars, hexagons, pentagons, octagons, bars, stripes, squiggles, rings, mathematical symbols or language symbols. The simplified symbol or picture representing a tissue or condition is in the shape of a lung, heart, brain, kidney, stomach, breast, colon, ragged rough edged cell or smooth round cells. The gene specific elements as described in (M2) corresponding to up-regulated genes and down-regulated genes are clustered in separate groups.

Preferably, the clusters of gene specific elements corresponding to up-regulated and down-regulated genes are further subdivided into two or more subgroups based upon significant differences in modified expression levels in the tissue or condition. Optionally, the gene specific elements are not clustered into specific groups on the miniarray, and the visually distinct image is generated by computer system. In (M3), the reporter elements are any one of direct labeling agents, indirect label-binding molecules, haptens or linker sequences that can bind a separate reporter such as labeled DNA, Gene TAGs or Chip TAGs. Preferably, the reporter elements or reporters are bound to the intermediate probes before or after the intermediate probes are bound to miniarray. Preferably, the intermediate probe comprises a first half-probe comprising a first binding element that binds to a first sequence in a target sample and a binding element that binds to a matching binding element spotted on miniarray and a second half-probe comprising a reporter element and a second binding element that binds to a second sequence in the target sample, where the first sequence and the second sequence are adjacent sequences in the target sample, and the first half-probe and the second half-probe are joined together to form a singular unit by a ligase enzyme after binding to the first and second sequences. The intermediate probes are constructed as WRAP-Probes (undefined) with universal linker/primer sequences at both ends, where increased signaling can be obtained by binding additional reporters to the universal linkers or exponentially amplifying the intermediate probes with a single primer set matching the primer sequences. The binding elements printed on the miniarray are generic oligonucleotides that are not substantially complementary to sequences of the target sample and that constitute an arbitrary set of unique addresses and unique locations on the miniarray. The binding elements printed on the miniarray are preferably organized in predefined patterns to facilitate the creation of the visually distinct image. The miniarray is printed with small subset of binding elements that create different common capture areas on the miniarray to form the visually distinct image, where the intermediate probes are grouped into different groups that each has a common binding element which binds to a matching binding element spotted on the miniarray. The groups of intermediate probes detect expression of genes that are up-regulated or down-regulated in the tissue or condition, or genes with unchanged expression levels in the tissue or condition as compared to control sample. The binding elements printed on the miniarray are any one of avidin, streptavidin, anti-hapten (preferably, dinitrophenyl or nitrotyrosine) antibody, antilfluorescent dye antibody or anti-nonfluorescent dye antibody, where the matching binding elements on the intermediate probes are any one of biotin, hapten, fluorescent dye or non-fluorescent dye such as digoxigenin, fluorescein, tetramethylrhodamine, Texas Red, dansyl, Alexa Fluor 488, BODIPY FL, lucifer, yellow, Cascade Blue or Marina Blue. Optionally the binding elements printed on the miniarray are generic oligonucleotides, where the intermediate probes are grouped into different groups that each has a common binding element which binds to the oligonucleotides spotted on the miniarray.

L107 ANSWER 7 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2002-481523 [52] WPIX

DNN N2002-380375

TI Level control mechanism for bio-fluid drop ejector, alters level of bio-fluid within reagent **cartridge** and level of **cartridge** with respect to bio-fluid drop ejection mechanism, when bio-fluid level is detected to be less.

DC P75 S02 S03

IN BRUCE, R H; ELROD, S A; HADIMIOGLU, B B; HORINE, D A; NOOLANDI, J

PA (XERO) XEROX CORP

CYC 27

PI EP 1209466 A2 20020529 (200252)\* EN 18p G01N033-48 <--

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT

RO SE SI TR  
 JP. 2002228672 A 20020814 (200268) 11p G01N035-10 <--  
 ADT EP 1209466 A2 EP 2001-126951 20011113; JP 2002228672 A JP 2001-339603  
 20011105  
 PRAI US 2000-721386 20001122  
 IC ICM G01N033-48; G01N035-10  
 ICS B41J002-045; B41J002-055; B41J002-175;  
 G01F023-00; G01N037-00  
 ICA G01N033-53  
 AB EP 1209466 A UPAB: 20020815  
 NOVELTY - The level of bio-fluid (38) within a reagent **cartridge**  
 (12), and the level of reagent **cartridge** with respect to the  
 bio-fluid drop ejection mechanism (14), are altered by an adjustment  
 mechanism, when a level sensor detects that the height of bio-fluid within  
 the **cartridge** is below predetermined level.  
 USE - For controlling level of bio-fluid in reagent **cartridge**  
 of bio-fluid drop ejector for use in biological testing for genetic defect  
 and other biochemical aberrations.  
 ADVANTAGE - Enables the bio-fluid drop ejector to eject bio-fluid  
 drops in small volume, hence precise control of bio-fluid level is  
 enabled.  
 DESCRIPTION OF DRAWING(S) - The figure shows a schematic view of an  
 acoustic drop ejector.  
 Reagent **cartridge** 12  
 bio-fluid drop ejection mechanism 14  
 Transducer 16  
 bio-fluid 38  
 Dwg.1/15  
 FS EPI GMPI  
 FA AB; GI  
 MC EPI: S02-C06; S03-E14H

L107 ANSWER 8 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 2002-304098 [34] WPIX  
 DNN N2002-237951 DNC C2002-088436  
 TI Apparatus for applying micro-droplets to a substrate comprises a dosing  
 head substrate nozzle openings, media regions for filling with a liquid  
 for dosing for each nozzle opening and a deformable component.  
 DC B04 D16 L03 P42 P75  
 IN DE HEIJ, B; ZENGERLE, R  
 PA (DHEI-I) DE HEIJ B; (ZENG-I) ZENGERLE R  
 CYC 94  
 PI WO 2002016021 A1 20020228 (200234)\* DE 66p B01J019-00  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
 SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 DE 10041536 A1 20020307 (200234) B05B017-04  
 AU 2001031758 A 20020304 (200247) B01J019-00  
 ADT WO 2002016021 A1 WO 2001-EP1747 20010216; DE 10041536 A1 DE 2000-10041536  
 20000824; AU 2001031758 A AU 2001-31758 20010216  
 FDT AU 2001031758 A Based on WO 200216021  
 PRAI DE 2000-10041536 20000824  
 IC ICM B01J019-00; B05B017-04  
 ICS B01L003-02; B05B001-08; B05B009-04; B41J002-045  
 AB WO 200216021 A UPAB: 20020528  
 NOVELTY - Apparatus for applying a number of micro-droplets to a substrate  
 comprises a dosing head substrate (10) having a number of nozzle openings  
 (16); media regions (18, 20) for filling with a liquid for dosing for each  
 nozzle opening; a deformable component (28) bordering the media regions;  
 and an operating device (34) for operating the deformable component so

that the component deforms in the media regions to simultaneously drive the micro-droplets.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a process for applying a number of micro-droplets to a substrate comprising producing a media region on a number of nozzle openings; and displacing liquid from each of the media regions by deforming a deformable component bordering the media zone so that a micro-droplet is expelled from each nozzle opening.

USE - Used for applying bio-chips to a substrate to detect different materials in an unknown sample.

ADVANTAGE - The apparatus has a simple structure.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section through the apparatus.

substrate 10

nozzle openings 16

media regions 18, 20

deformable component 28

operating device 34

Dwg.1/17

FS CPI GMPI

FA AB; GI

MC CPI: B11-C08E6; D05-H08; D05-H09; D05-H10;

D05-H13; L03-J

TECH UPTX: 20020528

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Features: Deformation of the deformable component is effected by relative movement between a counter holding element (30) and the dosing head substrate. The deformable component is made of an incompressible material, preferably an elastomer. The openings of the media regions bordering the deformable component have identical cross-sectional profiles.

L107 ANSWER 9 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2002-282706 [33] WPIX

DNN N2002-220824

TI Replaceable **ink container** for use in **inkjet** printer, has electrical storage device e.g. memory, for keeping **ink container** parameters, such as **ink container** configuration and **ink** volume parameters.

DC P75 T01 T04

IN BULLOCK, M L; CHILDERS, W D; HELTERLINE, B L; WALKER, R A

PA (HEWP) HEWLETT-PACKARD CO

CYC 30

PI EP 1177907 A1 20020206 (200233)\* EN 26p B41J002-175 <--  
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI TR

JP 2002059566 A 20020226 (200233) 14p B41J002-175 <--

US 6345891 B1 20020212 (200233) B41J002-175 <--

CN 1336284 A 20020220 (200235) B41J002-175 <--

KR 2002011090 A 20020207 (200255) B41J002-175 <--

ADT EP 1177907 A1 EP 2001-306549 20010731; JP 2002059566 A JP 2001-229945  
20010730; US 6345891 B1 US 2000-629120 20000731; CN 1336284 A CN  
2001-124757 20010731; KR 2002011090 A KR 2001-45505 20010727

PRAI US 2000-629120 20000731

IC ICM B41J002-175

AB EP 1177907 A UPAB: 20020524

NOVELTY - An electrical storage device e.g. a memory (80) is provided in a replaceable **ink container** (12). The storage device holds **ink container** parameters, such as the **ink container** configuration parameter and the **ink** volume parameter. The **ink** volume parameter comprises of an **ink** scale parameter for selecting an **ink** volume range, and a fill proportion parameter.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the

following:

(a) an electrical storage device for use with an **ink container**;

(b) a method for storing **ink container** parameters in an electrical storage device;

(c) a method for specifying **ink** volume for a system of **ink containers**;

(d) and an **inkjet** printing system.

USE - For providing **ink** to print head of **inkjet** printer. Also for use in e.g. facsimile, postal franking machine, textile printing device, and large format type printing systems used in display or outdoor signage.

ADVANTAGE - Allows electrical storage device to redefine and retain only relevant **ink container** information e.g. **ink** volume, current **ink** available, **ink** tracking information, thus allowing size of device to be reduced. Improves resolution even when **ink container** has low **ink** volume range.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of an **inkjet** printer connected to a host computer, the **inkjet** printer containing an **ink container** and a printing head each containing the electrical storage device.

#### **Ink container 12**

Memory 80

Dwg.9/12

FS EPI GMPI

FA AB; GI

MC EPI: T01-H01B; T04-G02; T04-G07; T04-G10A

L107 ANSWER 10 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2001-625428 [72] WPIX

DNN N2001-466178 DNC C2001-186279

TI Application of marker material to carrier surface involves applying marker material using drop on demand or impulse jet **ink jet** printer.

DC J04 P75 S03 T04

IN FOX, M J

PA (WILL-N) WILLETT INT LTD

CYC 94

PI WO 2001051908 A1 20010719 (200172)\* EN 19p G01N001-31 <--  
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2001025322 A 20010724 (200172) G01N001-31 <--

ADT WO 2001051908 A1 WO 2001-GB66 20010110; AU 2001025322 A AU 2001-25322  
20010110

FDT AU 2001025322 A Based on WO 200151908

PRAI GB 2000-789 20000114

IC ICM G01N001-31

ICS B41J002-04; C09D011-00

AB WO 200151908 A UPAB: 20011206

NOVELTY - A marker material is applied to a surface of a carrier by applying the marker material as a fluid to a carrier using a drop on demand or impulse jet **ink jet** printer. The printer is one whose operation and/or design has been modified so that the droplets of fluid striking the surface or the surface layer do not cause an unacceptable level of disturbance of the layer.

DETAILED DESCRIPTION - Application of a marker material to a surface of a carrier to form deposits which can interact with a product sample to provide a characteristic spectrum upon radiation with infrared, ultraviolet or other radiation, involves applying the marker material as a

fluid to a selected area of the surface of the carrier or of a layer carried by the carrier. The marker is applied using a drop on demand or impulse jet **ink** jet printer. The printer is one whose operation and/or design has been modified so that the droplets of fluid striking the surface or the surface layer do not cause an unacceptable level of disturbance of the layer and/or scattering of the applied marker material upon the surface of the carrier.

An INDEPENDENT CLAIM is also included for an apparatus for applying a fluid containing marker material to a carrier including mechanism for moving the carrier relative to an application mechanism comprising a drop on demand or impulse jet **ink** jet printer.

USE - For applying marker material to a test slide.

ADVANTAGE - Use of the printer enables the operator to apply thousands of droplets of fluid containing the marker material per second, accurately and rapidly.

Dwg.0/0

FS CPI EPI GMPI

FA AB

MC CPI: J04-B01

EPI: S03-E04E; S03-E13D; T04-G02

TECH UPTX: 20011206

TECHNOLOGY FOCUS - IMAGING AND COMMUNICATION - Preferred Property: The kinetic energy of the droplets is less than 40 (preferably 8-35) picojoules.

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Component: The carrier is a planar glass strip or slide. It has an absorbent layer to which the marker material can be applied. The absorbent layer comprises silica particles in a gelatin binder.

L107 ANSWER 11 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2001-406924 [43] WPIX

CR 1996-391979 [39]; 1997-042462 [04]; 1997-205167 [19]; 1997-271965 [24]; 1997-300215 [28]; 1997-300216 [28]; 1997-300217 [28]; 1997-437340 [41]; 1997-491848 [46]; 1998-123168 [12]; 1998-181074 [17]; 1998-242482 [22]; 1998-242483 [22]; 1998-378966 [33]; 1998-379607 [33]; 1998-413934 [35]; 1998-545238 [47]; 1999-045630 [04]; 1999-045635 [04]; 1999-080592 [07]; 1999-083437 [08]; 1999-315034 [27]; 1999-529587 [45]; 1999-542426 [46]; 1999-580170 [49]; 1999-589947 [50]; 2000-037250 [03]; 2000-051883 [04]; 2000-223104 [19]; 2000-301980 [26]; 2001-006243 [01]; 2001-256785 [26]; 2001-264939 [27]; 2001-326774 [34]; 2001-513760 [56]; 2001-520963 [57]; 2001-541101 [60]; 2001-549252 [61]; 2001-610628 [70]; 2002-054336 [07]; 2002-121078 [16]; 2002-360599 [39]; 2002-391952 [42]

DNN N2001-300960

TI **Inkjet** printing system for copier, printer, has print **cartridges** with contact pad and fluid interconnect on its opposing sides, which is inserted into carriage along specific direction.

DC P75 S06 T04 W02

IN CHILDERS, W D; LEE, T; MARLER, J D; PAWLOWSKI, N E

PA (HEWP) HEWLETT-PACKARD CO

CYC 1

PI US 6231173 B1 20010515 (200143)\* 63p B41J002-175 <--

ADT US 6231173 B1 CIP of US 1994-331453 19941031, CIP of US 1995-518847 19950824, CIP of US 1995-550902 19951031, Cont of US 1996-706045 19960830, US 1999-256820 19990224

PRAI US 1996-706045 19960830; US 1994-331453 19941031; US 1995-518847 19950824; US 1995-550902 19951031; US 1999-256820 19990224

IC ICM B41J002-175

AB US 6231173 B UPAB: 20020829

NOVELTY - Print **cartridge** (31) is inserted into carriage (16).

Contact pads and fluid interconnect on either sides of **cartridge**

, electrically contact with electrode on carriage, and detachedly attached with fluid source, respectively. Print head ejects **ink** droplets

based on signals from electrodes. On insertion of **cartridge** along specific direction, **ink** flows to **cartridge** fluid interconnect in direction opposite to specific direction.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) **Ink** delivery system;

(b) **Ink** providing method

USE - For **inkjet** printer, copier, facsimile etc.

ADVANTAGE - Increases flow of **ink** between carriage and **cartridge** by arranging fluid interconnect and contact pads on opposing sides of **cartridge**.

DESCRIPTION OF DRAWING(S) - The figure shows the perspective view and top down view of **inkjet** printer.

Carriage 16

Print **cartridge** 31

1A, 1B/51

FS EPI GMPI

FA AB; GI

MC EPI: S06-A16B; T04-G02; W02-J02B3

L107 ANSWER 12 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2001-381560 [40] WPIX

DNN N2001-279799 DNC C2001-116905

TI Droplet ejector used for **ink-jet** printing comprises a housing containing a cavity, a refill channel for infusing liquid into cavity and an ultrasonic excitation source which excites liquid and causes it to eject as droplets through nozzle.

DC D16 L03 P75 T04

IN FITZGERALD, A M; LADABAUM, I

PA (SENS-N) SENSANT CORP

CYC 95

PI WO 2001042019 A1 20010614 (200140)\* EN 25p B41J002-045 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
 SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW

AU 2001020695 A 20010618 (200161) B41J002-045 <--

US 6422684 B1 20020723 (200254) B41J002-135 <--

EP 1235687 A1 20020904 (200266) EN B41J002-045 <--

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI TR

ADT WO 2001042019 A1 WO 2000-US33216 20001208; AU 2001020695 A AU 2001-20695  
 20001208; US 6422684 B1 US 1999-466991 19991210; EP 1235687 A1 EP  
 2000-984015 20001208, WO 2000-US33216 20001208

FDT AU 2001020695 A Based on WO 200142019; EP 1235687 A1 Based on WO 200142019  
 PRAI US 1999-466991 19991210

IC ICM B41J002-045; B41J002-135

ICS B41J002-14; B41J002-16

AB WO 200142019 A UPAB: 20010719

NOVELTY - Droplet ejector comprises: a housing defining a cavity of predetermined dimensions; a refill channel connected to the cavity that allows for infusion of fluid into the cavity; a nozzle formed in the cavity; and an ultrasonic excitation source capable of ultrasonically exciting the liquid and causing ejection of a droplet of liquid in the cavity through a nozzle.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a method of forming an ultrasonic droplet ejector; and

(b) a droplet ejector array capable of ejecting liquid.

USE - Arrays of droplet ejectors are useful in **ink-jet** printing, color printing (claimed), deoxyribonucleic acid (DNA) chip



printing (claimed) and fuel injectors.

ADVANTAGE - The resonant cavities are small enough and the excitation frequencies are high enough to enable addressable arrays of ejectors to generate droplets at rapid rates and in patterns. The refill channel has a larger flow resistance than the nozzle so that droplet ejection occurs through the nozzle and regurgitation is prevented. Each droplet ejection requires more than one cycle of acoustic excitation, but the droplet ejector rate greater than 10 kHz.

DESCRIPTION OF DRAWING(S) - The diagram illustrates a cross section of an ultrasonic droplet ejector with an electrostatic diaphragm excitation source.

Dwg.5/8

FS CPI EPI GMPI

FA AB; GI

MC CPI: D05-H02; D05-H10; D05-H12; L03-D04D

EPI: T04-G02A

TECH UPTX: 20010719

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Apparatus: The ultrasonic excitation source is capable of causing the cavity to resonate at a resonant frequency and thereby result in ejection of droplet from the cavity. The flow resistance across the refill channel is greater than the flow resistance across the nozzle. The ultrasonic excitation source includes a piezoelectric element, an electrostatically excited diaphragm or a piezoelectrically excited diaphragm.

The largest dimension of the cavity is an order of magnitude smaller than the wavelength of sound in the liquid at the frequency of excitation. The maximum cavity dimension is 50 microns. The housing includes a substrate, a nozzle plate, and alignment structure for mating the nozzle plate and the substrate. The ultrasonic excitation source is formed within the housing on the substrate.

L107 ANSWER 13 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2001-368766 [39] WPIX

CR 2001-343428 [36]; 2002-204983 [26]; 2002-360925 [39]

DNN N2001-269110

TI Apparatus for refilling a replaceable ink container using a capillary storage member for retaining and providing controlled release of ink from the container.

DC P75 T04

IN CHILDERS, W D; OLSEN, D; JOHNSON, D C; PEW, J K

PA (HEWP) HEWLETT-PACKARD CO

CYC 95

PI EP 1095779 A2 20010502 (200139)\* EN 17p B41J002-175 <--  
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI

WO 2001032431 A1 20010510 (200139) EN B41J002-175 <--  
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TZ UG ZW  
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

JP 2001130024 A 20010515 (200143) 36p B41J002-175 <--  
AU 2001012359 A 20010514 (200149) B41J002-175 <--  
US 6402306 B1 20020611 (200244) B41J002-175 <--  
EP 1224081 A1 20020724 (200256) EN B41J002-175 <--  
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI

ADT EP 1095779 A2 EP 2000-309474 20001027; WO 2001032431 A1 WO 2000-US29568  
20001027; JP 2001130024 A JP 2000-325123 20001025; AU 2001012359 A AU  
2001-12359 20001027; US 6402306 B1 US 2000-627958 20000728; EP 1224081 A1  
EP 2000-973912 20001027, WO 2000-US29568 20001027

FDT AU 2001012359 A Based on WO 200132431; EP 1224081 A1 Based on WO 200132431

PRAI US 2000-627958 20000728; US 1999-430400 19991029

IC ICM **B41J002-175**

AB EP 1095779 A UPAB: 20020903

NOVELTY - A pressurizing device (58) is coupled to an **ink** source (56) via an interconnection (60) to pass pressurized **ink** to the **ink container** (12) and **ink** is delivered into the network of fibers (40) in the **container**. The **ink** replaces air between the fibers and air passes out through an outlet (38) as the **ink** moves across an **ink** front (62) in the **container** during its refilling.

DETAILED DESCRIPTION - AN INDEPENDENT CLAIM is included for a method of filling a replaceable **ink container**.

USE - Refilling a replaceable **ink container**.

ADVANTAGE - Preventing **ink** leakage by providing sufficient pressure.

DESCRIPTION OF DRAWING(S) - The drawing shows the apparatus Pressurizing device 58

**Ink** source 56

**Ink container** 12

Fibers 40

**Ink** front 62

Dwg.7/11

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-L09

L107 ANSWER 14 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN **2000-386808** [33] WPIX

CR 1996-116535 [12]; 1997-395740 [37]

DNN **N2000-289599**

TI Replaceable **ink cartridge** for providing **ink** to **inkjet** printer memory responds to the control signals received by the data terminal relative to the reference terminal for providing a data signal representing stored information..

DC P75 T04

IN BULLOCK, M L; CHILDERS, W D; HIRST, B M; MIQUEL, A G; STEPHENS, R D

PA (HEWP) HEWLETT-PACKARD CO

CYC 1

PI US 6065824 A 20000523 (200033)\* 8p B41J029-393 <--

ADT US 6065824 A CIP of US 1994-363188 19941222, Div ex US 1996-584499 19960108, CIP of US 1997-901299 19970728, US 1997-961852 19971031

FDT US 6065824 A CIP of US 5491540, CIP of US 5835817

PRAI US 1997-961852 19971031; US 1994-363188 19941222; US 1996-584499 19960108; US 1997-901299 19970728

IC ICM **B41J029-393**

AB US 6065824 A UPAB: 20000718

NOVELTY - The replaceable **ink cartridge** has a memory with data and reference terminals. The memory responds to the control signals received by the data terminal relative to the reference terminal for providing a data signal representing stored information. The data signal is detected by an **inkjet** printer for use in the printing operation.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for providing data from memory of replaceable **ink cartridge** to **inkjet** printer.

USE - For providing **ink** to **inkjet** printer.

ADVANTAGE - Has electrical coupling that allows passing of data between **ink cartridge** and **inkjet** printer to ensure operation of **inkjet** printer is compatible with **ink** contained in **ink cartridge** to achieve optimal print quality. Has small number of electrical contacts to increase connection reliability between **ink cartridge** and

**inkjet** printer. Provides consistent and improved output quality and easy to use due to automatic updating of printer parameters in printing system. Included in printing system with controller that can disable **inkjet** printing system to prevent dry firing and damage on print head. Ensures maximum print quality since controller is used to indicate when **ink cartridge** must be replaced. Has reduced manufacture cost and interconnects.

Dwg.0/4

FS EPI GMPI

FA AB

MC EPI: T04-G02; T04-G10A

L107 ANSWER 15 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2000-270993 [23] WPIX

DNC C2000-082593

TI Capillary printing system for depositing small volumes of liquid on solid substrates, e.g. for the deposition of arrays of analytes of chemical or biochemical library arrays.

DC B04 D16 J04

IN BEVIRT, J; MAURINO, J R; SHALON, T; TITSWORTH, L D; SHALON, T D; SHAION, T D

PA (INCY-N) INCYTE PHARM INC; (BEVI-I) BEVIRT J; (MAUR-I) MAURINO J R; (SHAL-I) SHALON T D; (TITS-I) TITSWORTH L D; (SHAI-I) SHAION T D; (INCY-N) INCYTE GENOMICS INC

CYC 23

PI WO 2000013796 A1 20000316 (200023)\* EN 30p B01L003-02  
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
W: AU CA JP

AU 9959153 A 20000327 (200032) B01L003-02

EP 1109624 A1 20010627 (200137) EN B01L003-02

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

US 2001013295 A1 20010816 (200149) B41K001-38

US 2001013298 A1 20010816 (200149) B41F001-00

US 6309891 B1 20011030 (200172) B01L003-02

US 2001044157 A1 20011122 (200176) B01J019-00

US 2002064887 A1 20020530 (200240) G01N001-10 <--

AU 748153 B 20020530 (200247) B01L003-02

ADT WO 2000013796 A1 WO 1999-US20692 19990909; AU 9959153 A AU 1999-59153 19990909; EP 1109624 A1 EP 1999-946833 19990909; WO 1999-US20692 19990909; US 2001013295 A1 Div ex US 1998-150502 19980909; US 2001-819162 20010327; US 2001013298 A1 Div ex US 1998-150502 19980909; US 2001-819166 20010327; US 6309891 B1 US 1998-150502 19980909; US 2001044157 A1 Cont of US 1998-150502 19980909; US 2001-884506 20010614; US 2002064887 A1 Div ex US 1998-150502 19980909; US 2001-819172 20010327; AU 748153 B AU 1999-59153 19990909

FDT AU 9959153 A Based on WO 200013796; EP 1109624 A1 Based on WO 200013796; AU 748153 B Previous Publ. AU 9959153, Based on WO 200013796

PRAI US 1998-150502 19980909; US 2001-819162 20010327; US 2001-819166 20010327; US 2001-884506 20010614; US 2001-819172 20010327

IC ICM B01J019-00; B01L003-02; B41F001-00; B41K001-38; G01N001-10

ICS B41J002-14; B41L001-00; B41M001-00; G01N035-10

AB WO 200013796 A UPAB: 20000516

NOVELTY - The system includes an attachment pod, a detachable printer, a substrate, a positioner and a preservation device. The printer has a reservoir coupled to a capillary with proximal and distal openings to ambient pressure, the distal opening forming a printing tip. The positioner moves the pod relative to the substrate. The preservation device enables the printer to print agent on the substrate over long-term storage.

USE - For printing small volumes of liquid on solid substrates, e.g. for depositing arrays of analytes, e.g. chemical and biochemical library arrays (e.g. products from synthesis schemes, natural products including genetic materials). In particular, the arrangement may be used to deposit

high density arrays of biochemical reagents or analytes (such as polypeptides and polynucleotides) in high throughput, solid phase immunoassays and hybridization assays. Other liquids which may be printed include aqueous liquids, organic polar solvents such as alcohols, DMSO, acetonitrile, and non-polar solvents, e.g. benzene and chloroform. The substrate may be glass, ceramics, plastics, metals, silicone, acetate or paper.

ADVANTAGE - The system can provide 10000 spot arrays on chip substrates at rates of up to 5 chips/sec.

DESCRIPTION OF DRAWING(S) - The figure shows one embodiment of the printer.

printer 11

gang print head 12

tabs 13

spring block 21

actuators 22

registration plate 23

registration apertures 24

Dwg.2/21

FS CPI

FA AB; GI; DCN

MC CPI: B04-E01; B04-N04; B10-A10; B10-A15; B10-H02F; B10-J02; B11-C07;  
B12-K04; D05-H10; J04-B01

TECH UPTX: 20000516

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Agent: The agent is a polynucleotide or a member of a chemical library.

Preferred System: In use, the capillary is decelerated by tapping the tip onto the substrate to move a predetermined amount of printing fluid through the bore. The system may include a motion resistor operatively joined to the capillary to provide incomplete resistance to motion of the capillary along its longitudinal axis. The resistance may be provided by springs, an elastomeric membrane, or the weight of the capillary.

L107 ANSWER 16 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2000-246250 [21] WPIX

CR 2000-160203 [13]

DNN N2000-184162

TI Replaceable ink jet printer cartridge uses a connector to pass information relating to printing parameters to a control unit, that stores the information in a memory storage unit.

DC P75 T01 T04

IN BULLOCK, M L; CHILDERS, W D; HELTERLINE, B L

PA (HEWP) HEWLETT-PACKARD CO

CYC 1

PI US 6039430 A 20000321 (200021)\* 10p B41J029-393 <--

ADT US 6039430 A CIP of US 1998-92111 19980605, US 1998-148039 19980903

PRAI US 1998-148039 19980903; US 1998-92111 19980605

IC ICM B41J029-393

AB US 6039430 A UPAB: 20000502

NOVELTY - The replaceable printer component (14), for use in an ink jet printer (10), consists of a linking connector (46), fixed to the control portion (26), which allows information to be transferred between the component and the ink jet printer. A storage device (38) is connected to the link, and configured to interact with the control portion, receiving information regarding the maintenance of the system.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method of collecting data from an ink jet printer.

USE - Replaceable ink jet printer cartridge.

ADVANTAGE - By including a memory storage device in the print cartridge, the printer can contain print parameter information. This means that when a component is replaced, the user does not have to manually reconfigure a machine for a desired set of parameters; these are obtained from the memory component.

DESCRIPTION OF DRAWING(S) - The figures shown are a schematic representation of an **ink** jet printer, with an inset diagram of the memory storage device.

**Ink** jet printer 10.

Replaceable printer component 14

Control portion 26

Storage device 38

Linking connector 46

2A, 2B/5

FS EPI GMPI

FA AB; GI

MC EPI: T01-F06; T01-H01B3; T04-G02

L107 ANSWER 17 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2000-160203 [14] WPIX

CR 2000-246250 [21]

DNN N2000-119576

TI **Ink** jet printing system e.g. for copiers, printers, plotters, has printing system control electronics to control operation of printing system.

DC P75 S06 T04

IN BULLOCK, M L; CHILDERS, W D

PA (HEWP) HEWLETT-PACKARD CO

CYC 1

PI US 6019449 A 20000201 (200014)\* 12p B41J029-38 <--

ADT US 6019449 A US 1998-92111 19980605

PRAI US 1998-92111 19980605

IC ICM B41J029-38

AB US 6019449 A UPAB: 20000502

NOVELTY - The system has a printing system control electronics to control the operation of the printing system. An **ink** jet printhead is installed in the printing system. A memory device is mounted on the **ink** jet printhead and contains printhead-related data. A first electrical interconnect on the printhead couples the first memory device to the printing system control electronics when the printhead is installed in the printing system. An **ink cartridge** is installed into the printing system and contains a supply of **ink**.

DETAILED DESCRIPTION - A second memory device mounted on the **ink cartridge** and contains **ink**-related data. A second electrical interconnect on the **ink cartridge** couples the second memory device to the printing system control electronics when the **ink cartridge** is installed in the printing system. The memories provide information to the printing system control electronics in order to carry out a printing operation. An INDEPENDENT CLAIM is included for a printhead for an **ink** jet printing system, an **ink** jet for installation into an **ink** jet printing system, an **ink cartridge** for an **ink** jet printing system, and an **ink** supply component configured for connection to a printing system.

USE - For copiers, printers, plotters.

ADVANTAGE - Provides improved printer control system which is able to update control parameters which are dependent upon current printer performance parameters contained on several consumable parts.

DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of components of the **ink** jet printer.

Dwg.1b/7

FS EPI GMPI

FA AB; GI

MC EPI: S06-A16B; T04-G02; T04-G10A; T04-H02

L107 ANSWER 18 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 2000-061521 [05] WPIX

CR 1992-425861 [52]; 1994-034475 [04]; 1994-050447 [07]; 1994-050448 [07];

1994-202126 [25]; 1994-202134 [25]; 1994-202220 [25]; 1995-327304 [42];  
 1996-172878 [18]; 1996-223228 [23]; 1996-405629 [41]; 1996-518054 [51];  
 1997-013558 [02]; 1997-228537 [21]; 1997-228538 [21]; 1997-235358 [21];  
 1997-489050 [45]; 1997-502516 [46]; 1997-528048 [49]; 1997-528049 [49];  
 1997-528050 [49]; 1997-528051 [49]; 1997-528062 [49]; 1998-458698 [40];  
 1998-483612 [42]; 1999-571401 [48]; 2000-104818 [08]; 2000-586304 [49];  
 2000-593705 [54]

DNN **N2000-048221**

TI Print **cartridge** recharging method for **inkjet** printer.

DC P75 T04

IN **CHILDERS, W D; SCHEFFELIN, J E**

PA (**HEWP**) **HEWLETT-PACKARD CO**

CYC 1

PI US 5992987 A 19991130 (200005)\* 29p B41J002-175 <--

ADT US 5992987 A CIP of US 1994-314978 19940929, Cont of US 1996-615936  
 19960314, US 1997-873614 19970611

FDT US 5992987 A Cont of US 5673073, CIP of US 5719610

PRAI US 1996-615936 19960314; US 1994-314978 19940929; US 1997-873614  
 19970611

IC ICM **B41J002-175**

AB US 5992987 A UPAB: 20020114

NOVELTY - Spring loaded seal of the syringe is opened, to allow air to enter into chamber (153), while **ink** within chamber is drawn into **reservoir**, due to its negative pressure. After the **reservoir** is sufficiently charged with **ink**, a plunger (152) is pulled inside the chamber, to maintain desired negative pressure in the **reservoir**. The recharge port is sealed while the **reservoir** is maintained at negative pressure.

DETAILED DESCRIPTION - The process of connecting outlet port of a syringe (204) to recharge port of a print **cartridge**, involves connecting slidable valve (156) of syringe to valve of print **cartridge**. The syringe is removed from print **cartridge** after the **ink** bag is filled because to prevent air ingestion into **ink** bag.

USE - For **inkjet** printer.

ADVANTAGE - As spring loaded seal is used to the negative pressure created in print **cartridge** is maintained reliably.

DESCRIPTION OF DRAWING(S) - The figure shows sectional view of syringe.

Plunger 152

Chamber 153

Slidable valve 156

Syringe 204

Dwg.31/35

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-L09

L107 ANSWER 19 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN **1999-589947** [50] WPIX

CR 1996-391979 [39]; 1997-042462 [04]; 1997-205167 [19]; 1997-271965 [24];  
 1997-300215 [28]; 1997-300216 [28]; 1997-300217 [28]; 1997-437340 [41];  
 1997-491848 [46]; 1998-123168 [12]; 1998-181074 [17]; 1998-242482 [22];  
 1998-242483 [22]; 1998-378966 [33]; 1998-379607 [33]; 1998-413934 [35];  
 1998-545238 [47]; 1999-045630 [04]; 1999-045635 [04]; 1999-080592 [07];  
 1999-083437 [08]; 1999-315034 [27]; 1999-529587 [45]; 1999-542426 [46];  
 1999-580170 [49]; 2000-037250 [03]; 2000-051883 [04]; 2000-223104 [19];  
 2000-301980 [26]; 2001-006243 [01]; 2001-256785 [26]; 2001-264939 [27];  
 2001-326774 [34]; 2001-406924 [43]; 2001-513760 [56]; 2001-520963 [57];  
 2001-541101 [60]; 2001-549252 [61]; 2001-610628 [70]; 2002-054336 [07];  
 2002-121078 [16]; 2002-360599 [39]; 2002-391952 [42]

DNN **N1999-435011**

TI **Ink** supply system for print **cartridge** in color

inkjet printer connected to computer.

DC P75 S06 T04 W02  
 IN CHILDERS, W D; LEE, T; MARLER, J D; PAWLOWSKI, N E  
 PA (HEWP) HEWLETT-PACKARD CO  
 CYC 1  
 PI US 5966155 A 19991012 (199950)\* 63p B41J002-175 <--  
 ADT US 5966155 A CIP of US 1994-331453 19941031, CIP of US 1995-518847  
 19950824, CIP of US 1995-550902 19951031, US 1996-706121 19960830  
 FDT US 5966155 A CIP of US 5583545, CIP of US 5736992, CIP of US 5872584  
 PRAI US 1996-706121 19960830; US 1994-331453 19941031; US 1995-518847  
 19950824; US 1995-550902 19951031

IC ICM B41J002-175

AB US 5966155 A UPAB: 20020829

NOVELTY - Print **cartridge** (50) is removably supported on scanning **cartridge** (48) having rubber septum (52). Printhead in print **cartridge** has hollow needle (60) which connects with rubber septum. Ink chamber (61) is connected with printhead, chamber being connected to needle through an ink channel (62).

DETAILED DESCRIPTION - Flexible tube (36) connects ink supply **cartridges** with the scanning carriage. The ink channel and the needle form an ink path from septum to ink chamber such that the path does not lie above the print **cartridge**. Ink flows into the needle in an opposite direction to ink droplet ejection from printhead. An INDEPENDENT CLAIM is also included for an ink supply method.

USE - In color inkjet printer, portable printer, facsimile, copier.

ADVANTAGE - The ink supply **cartridges** are easily accessible and maximum utilization of space is enabled. By providing pressure regulator in print **cartridge**, ink discharge can be made independent of the height between supply **cartridge** and printing head. Both pressurized and non-pressurized ink supply methods can be adopted. Frequent replacement of print **cartridge** is avoided.

DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of the carriage with print **cartridge**.

Flexible tube 36  
 Scanning **cartridge** 48  
 Print **cartridge** 50  
 Rubber septum 52

Hollow needle 60  
 Ink chamber 61  
 Ink channel 62

Dwg. 3A/51

FS EPI GMPI

FA AB; GI

MC EPI: S06-A16B; S06-A19; T04-G02; T04-L09; W02-J02B3; W02-J05

L107 ANSWER 20 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1999-580170 [49] WPIX

CR 1996-391979 [39]; 1997-042462 [04]; 1997-205167 [19]; 1997-271965 [24];  
 1997-300215 [28]; 1997-300216 [28]; 1997-300217 [28]; 1997-437340 [41];  
 1997-491848 [46]; 1998-123168 [12]; 1998-181074 [17]; 1998-242482 [22];  
 1998-242483 [22]; 1998-378966 [33]; 1998-379607 [33]; 1998-413934 [35];  
 1998-545238 [47]; 1999-045630 [04]; 1999-045635 [04]; 1999-080592 [07];  
 1999-083437 [08]; 1999-315034 [27]; 1999-529587 [45]; 1999-542426 [46];  
 1999-589947 [50]; 2000-037250 [03]; 2000-051883 [04]; 2000-223104 [19];  
 2000-301980 [26]; 2001-006243 [01]; 2001-256785 [26]; 2001-264939 [27];  
 2001-326774 [34]; 2001-406924 [43]; 2001-513760 [56]; 2001-520963 [57];  
 2001-541101 [60]; 2001-549252 [61]; 2001-610628 [70]; 2002-054336 [07];  
 2002-121078 [16]; 2002-360599 [39]; 2002-391952 [42]

DNN N1999-428346

TI Refurbishment method for ink container for printer.

DC P75 T04  
 IN BULLOCK, M L; CHILDERS, W D; PAWLOWSKI, N E; THIELMAN, J L;  
 BARINAGA, J A; CLARK, J E; MERRILL, D O; NGUYEN, N; OTIS, D R  
 PA (HEWP) HEWLETT-PACKARD CO; (BULL-I) BULLOCK M L;  
 (CHIL-I) CHILDERS W D; (PAWL-I) PAWLOWSKI N E; (THIE-I) THIELMAN J L  
 CYC 22  
 PI WO 9944830 A1 19990910 (199949)\* EN 54p B41J002-175 <--  
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
 W: CN JP KR US  
 US 6015209 A 20000118 (200011)  
 EP 1060081 A1 20001220 (200105) EN B41J002-175 <--  
 R: DE ES GB  
 CN 1286659 A 20010307 (200140) B41J002-175 <--  
 KR 2001041526 A 20010525 (200168) B41J002-175 <--  
 US 6318850 B1 20011120 (200174) B41J002-175 <--  
 JP 2002505212 W 20020219 (200216) 59p B41J002-175 <--  
 US 2002024570 A1 20020228 (200220) B41J002-175 <--  
 EP 1201441 A1 20020502 (200236) EN B41J002-175 <--  
 R: DE ES GB  
 EP 1060081 B1 20020918 (200269) EN B41J002-175 <--  
 R: DE ES GB  
 ADT WO 9944830 A1 WO 1998-US8886 19980511; US 6015209 A CIP of US 1995-429915  
 19950427, CIP of US 1995-566821 19951204, US 1998-53556 19980401; EP  
 1060081 A1 EP 1998-922082 19980511, WO 1998-US8886 19980511; CN 1286659 A  
 CN 1998-813852 19980511; KR 2001041526 A KR 2000-709697 20000901; US  
 6318850 B1 CIP of US 1995-566821 19951204, CIP of US 1997-785580 19970121,  
 CIP of US 1998-34719 19980304, CIP of US 1998-53556 19980402, WO  
 1998-US8886 19980511, US 1998-230950 19980808; JP 2002505212 W WO  
 1998-US8886 19980511, JP 2000-534406 19980511; US 2002024570 A1 CIP of US  
 1995-566821 19951204, CIP of US 1997-785580 19970121, CIP of US 1998-34719  
 19980304, CIP of US 1998-53556 19980401, Cont of US 1998-230950 19980808,  
 US 2001-951114 20010913; EP 1201441 A1 Div ex EP 1998-922082 19980511, EP  
 2002-75140 19980511; EP 1060081 B1 EP 1998-922082 19980511, WO 1998-US8886  
 19980511, Related to EP 2002-75140 19980511  
 FDT US 6015209 A CIP of US 5777646, CIP of US 5825387; EP 1060081 A1 Based on  
 WO 9944830; US 6318850 B1 CIP of US 5777646, CIP of US 5812156, CIP of US  
 6015209, CIP of US 6170937, Based on WO 9944830; JP 2002505212 W Based on  
 WO 9944830; US 2002024570 A1 CIP of US 5777646, CIP of US 5812156, CIP of  
 US 6015209, CIP of US 6170937, Cont of US 6318850; EP 1201441 A1 Div ex EP  
 1060081; EP 1060081 B1 Related to EP 1201441, Based on WO 9944830  
 PRAI US 1998-53556 19980401; US 1998-34719 19980304; US 1995-429915  
 19950427; US 1995-566821 19951204; US 1997-785580 19970121; US  
 1998-230950 19980808  
 IC ICM B41J002-175  
 AB WO 9944830 A UPAB: 20021026  
 NOVELTY - The **ink container** is used in an **ink**  
 jet printing system. The **container** includes a data element that  
 is updated by the printer to reflect the amount of remaining **ink**  
 . The data may also include parameters of the **ink**. When the  
**container** is empty it is placed in a refilling station. This uses  
 a needle (146) to penetrate the **container** outlet (30) and  
 deliver **ink** (156) to the **container**. Air pressure (132)  
 is relieved by creating an air vent (158). The data element is either  
 erased and re-written or it is disabled and replaced by another data  
 element or emulator circuit.  
 USE - **Ink container** refilling for **ink**  
 -jet printing systems.  
 ADVANTAGE - Allows **container** to be re-used while correctly  
 modifying the data element and using only existing openings in the  
**container**.  
 DESCRIPTION OF DRAWING(S) - **Ink container**  
 refilling  
 Container 12



Ink bag 22

Ink outlet used for re-supply of ink 30

Air vent to relive refill pressure 158

Dwg.16/16

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-L09

L107 ANSWER 21 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1999-550158 [46] WPIX

CR 1993-313434 [40]; 1994-350645 [44]; 1995-187102 [25]; 1996-180943 [19];  
1996-180944 [19]; 1996-180945 [19]; 1996-180955 [19]; 1996-180956 [19];  
1996-201890 [21]; 1996-403854 [41]; 1996-403855 [41]; 1996-413712 [42];  
1996-485220 [48]; 1997-247255 [23]; 1997-310025 [28]; 1998-347653 [30];  
1999-253091 [18]; 1999-315034 [27]; 1999-518074 [43]; 2000-021759 [52];  
2001-101963 [11]

DNN N1999-407030 DNC C1999-160334

TI Ink jet drop ejection system used in ink jet printers,  
etc..

DC A97 E13 E17 E21 E23 E24 G02 G05 T04

IN CHILDERS, W D; COURIAN, K J; DONOVAN, D H; KEEFE, B J; MORITZ, J  
G; PRASAD, K A; SADER, R A; STEINFELD, S W; STOFFEL, J L; WEBB, S L

PA (HEWP) HEWLETT-PACKARD CO

CYC 1

PI US 5946012 A 19990831 (199946)\* 62p B41J002-05 <--

ADT US 5946012 A Cont of US 1992-862086 19920402, CIP of US 1994-179866  
19940111, CIP of US 1994-319896 19941006, Cont of US 1996-608376 19960228,  
US 1998-90968 19980604

FDT US 5946012 A Cont of US 5278584, CIP of US 5625396, CIP of US 5648805

PRAI US 1996-608376 19960228; US 1992-862086 19920402; US 1994-179866  
19940111; US 1994-319896 19941006; US 1998-90968 19980604

IC ICM B41J002-05

AB US 5946012 A UPAB: 20010813

NOVELTY - Novel pigment-based inks are used in ink jet  
drop ejection systems to give high optical densities, with excellent  
permeance, no fade, better waterfastness, and good stability.

DETAILED DESCRIPTION - An ink jet drop ejection system  
comprises: (a) a substantially rectangular substrate having a top surface  
and an opposing bottom surface, and having a first outer edge along a  
periphery of the substrate and a second outer edge along the opposite  
periphery of the substrate; (b) a nozzle part having ink  
orifices formed in it and positioned to overlie the top surface of the  
substrate; (c) first and second ink ejection elements formed on  
the top surface of the substrate, each of which comprise a firing element  
in a vaporization chamber and is located approximate to an associated one  
of the orifices for causing a portion of ink to be expelled from  
the associated orifice as the ink jet drop ejection system is  
moved along a scan direction; (d) an ink reservoir for  
holding a quantity of ink; (e) a fluid channel, communicating  
with the reservoir, leading to each of the orifices and the  
ink ejection elements, and allowing ink to flow from the  
ink reservoir, around the first outer edge of the  
substrate and to the top edge of the substrate so as to be proximate to  
the orifices and the ink ejection elements; (f) a separate inlet  
passage defined by a barrier layer for each vaporization chamber  
connecting the fluid channel with the vaporization chamber for allowing  
high frequency refill of the vaporization chamber; (g) a group of the  
firing elements in adjacent relationship forming a primitive in which only  
one firing element in the primitive is activated at a time by a  
combination of a primitive select signal and a firing element address  
signal; and (h) circuit means for transmitting firing signals to the  
ink firing elements at a maximum frequency greater than 9 kHz. The  
first ink ejection elements are arranged in a first array along

the first outer edge and the second **ink** ejection elements are arranged in a second array along the second outer edge. Each vaporization chamber and associated orifice is offset from adjacent vaporization chambers and orifices along a direction perpendicular to the scan direction. The address signals associated with each firing element in a primitive is sequentially generated in time in a fixed sequence. The timing of the firing of offset firing elements in the primitive by the sequence address signals is such that later-occurring address signals in the fixed sequence control the firing of offset firing elements that are located downstream from other firing elements in each of the first array and the second array with respect to the scan direction. The combination of the firing of one firing element in a primitive at a time and the firing of offset firing elements by later-occurring address signals in the fixed sequence reduces the crosstalk between the vaporization chambers. The **ink** jet drop ejection system forms a part of a color set comprising at least one **ink**, comprising at least one colorant in an aqueous vehicle.

USE - Used in **ink** jet and other types of printers, especially **ink** jet drop generators.

ADVANTAGE - The use of pigment based **inks** provides high optical densities, excellent permeance, no fade, better waterfastness, and good stability. Also good drop generator stability is obtained.

DESCRIPTION OF DRAWING(S) - The figure shows a portion of the adhesive seal (90), applied to the inner raised wall (54) and wall openings (55, 56), surrounding the substrate (28) and showing the substrate (28) being adhesively secured to a central portion of the flexible circuit (18) by the thin adhesive layer (84) on the top surface of the barrier layer (30) containing the **ink** channels and vaporization chambers (92, 94). **Ink** (88) from the **ink reservoir** (12) flows through the central slot (52) formed in the print **cartridge** (10) and flows around the edges (86) of the substrate (28) through **ink** channels (80) into the vaporization chambers (92, 94). Thin film resistors (96, 98) are shown within the vaporization chambers (92, 94) respectively. When the resistors (96, 98) are energized, the **ink** within the vaporization chambers (92, 94) are ejected, as illustrated by the emitted drops of **ink** (101, 102).

Dwg.13/37

FS CPI EPI

FA AB; GI; DCN

MC CPI: A12-W07D; A12-W07F; E07-D03; E10-E04H; E10-E04J; E21-B05; E21-B06; E21-B07; E23-A02; E25-D; E25-E02; G02-A04A; G05-F03

EPI: T04-G02A; T04-G02C

TECH UPTX: 19991110

TECHNOLOGY FOCUS - POLYMERS - Preferred System: The firing elements are arranged in a staggered configuration along the substrate such that adjacent firing elements are located at different shelf lengths along its edge. Each of the separate inlet passage, or every other one, for each vaporization chamber additionally has peninsulas. Alternatively the firing elements are arranged along the substrate at substantially identical shelf lengths along its edge. The substrate rotated with respect to the scan direction to compensate for timing delays between adjacent nozzles and by an amount given by  $\theta = \arcsin(v \cdot t / D)$ , where  $v$  is the scan velocity of the **ink** jet drop ejection system,  $t$  is the time delay between firing two adjacent **ink** ejection elements, and  $D$  is the distance between adjacent nozzles. The vaporization chambers are substantially rectangular or circular. A group of the vaporization chambers in adjacent relationship form a primitive in which only one vaporization chamber in the primitive is activated at a time. The separate inlet passage for each vaporization chamber has pinch points formed in the barrier layer to prevent crosstalk and overshoot during high frequency operation. Preferred Colorant: The colorant comprises a pigment which is black selected from Reactive Black 31, Project Fast Black 2, Food Black 2,

Direct Black 168, Direct Black 19 and Mobay Special Direct Black (SP), or is selected from cyan pigments, selected from Direct Blue 86 and Direct Blue 99, yellow pigments of Direct Yellow 86 and magenta pigments of Acid red 249. The pigment has a particle size of 20-99 nm or 100-125 nm or 126-200 nm. The **ink** further includes a pigment dispersant which is an acrylic, a non-acrylic, a block polymer, or a non-block polymer selected from random, star and graft polymers. The dispersant comprises at least one hydrophilic molecule covalently bonded to the pigment. The **ink** has a viscosity of 1.2-2.5 cp or 2.6-3.4 cp or 3.5-8 cp, a surface tension of 30-49 cp, or 50-58 cp, or 59-65 cp. Preferred Vehicle: The vehicle includes a dry time component comprising at least 2 alcohols, or at least 1 alcohol, in an amount sufficient to provide the **ink** with a dry time of 15-45 seconds on typical office copier papers. The vehicle contains 2-60, preferably 3-15 wt.% at least one cosolvent of polyethylene glycol selected from diethylene glycol, glycerol, triethylene glycol, N-methyl pyrrolidone, tetraethylene glycol, 1,4-butanediol, 1,2-pentanediol, and 1,5-pentanediol, and 8-10, preferably 3-8 wt.% 2-pyrrolidone.

ABEX

EXAMPLE - None given.

L107 ANSWER 22 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 1999-433308 [37] WPIX  
 DNN N1999-322654 DNC C1999-127898  
 TI Contents information display method in test tube used for clinical laboratory - involves printing contents information on plastic outer surface of test tube.  
 DC A96 B04 J04 P31 P75 P85 S03  
 PA (TOXW) TOYO INK MFG CO LTD  
 CYC 1  
 PI JP 11174060 A 19990702 (199937)\* 4p G01N035-02 <--  
 ADT JP 11174060 A JP 1997-343541 19971215  
 PRAI JP 1997-343541 19971215  
 IC ICM G01N035-02  
 ICS A61B005-14; G01N001-10; G09F007-00  
 ICA B01L003-14; B41J002-01  
 AB JP 11174060 A UPAB: 19990922  
 NOVELTY - A plastic outer surface with **ink** acceptance property paper is formed. The content information of test tube is printed on the plastic outer surface.  
 USE - In test tube used in clinical laboratory.  
 ADVANTAGE - Enables easy printing by providing discardable plastic sheet.  
 Dwg.0/0  
 FS CPI EPI GMPI  
 FA AB  
 MC CPI: A11-C04A; A12-V03C2; B11-C09; B12-K04; J04-B01  
 EPI: S03-E13B; S03-E15

L107 ANSWER 23 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 1999-231408 [20] WPIX  
 DNN N1999-171424 DNC C1999-068163  
 TI Manufacturing highly sensitive sensor device comprising organic thin films is useful for detecting trace amounts of substances e.g. biomolecules or other organic material.  
 DC A26 A32 A96 B04 D16 G05 P75 S03  
 IN FUKUSHIMA, H; MORGAN, H; SHIMODA, T  
 PA (SHIH) SEIKO EPSON CORP; (UNIU) UNIV GLASGOW; (FUKU-I) FUKUSHIMA H;  
 (MORG-I) MORGAN H; (SHIM-I) SHIMODA T  
 CYC 28  
 PI EP 908725 A1 19990414 (199920)\* EN 16p G01N033-543 <--  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI

CA 2248517 A1 19990330 (199937) EN G01N027-30 <--  
 JP 2000033712 A 20000202 (200017) 8p B41J002-175 <--  
 US 2001044177 A1 20011122 (200176) H01L021-8238

ADT EP 908725 A1 EP 1998-307968 19980930; CA 2248517 A1 CA 1998-2248517  
 19980930; JP 2000033712 A JP 1997-266225 19970930; US 2001044177 A1 Div ex  
 US 1998-163199 19980930, US 2001-870588 20010601

PRAI JP 1997-266225 19970930

IC ICM **B41J002-175; G01N027-30; G01N033-543;**  
 H01L021-8238

ICS **B41J002-01; B41J002-16; C12Q001-68;**  
**G01N027-327**

AB EP 908725 A UPAB: 19990525

NOVELTY - The manufacture of the sensor device comprises forming organic thin films on an arbitrarily chosen electrode board circuit and electrodes, and a transducing element capable of transducing information recognized by the organic thin films into electric signals.

DETAILED DESCRIPTION - A solution of a material of the thin film is accurately printed via an **ink**-jet nozzle as micro-dots onto the required surfaces of microelectrodes so that organic film is formed on the electrodes therefore realizing highly dense microelectrodes. An INDEPENDENT CLAIM is also included for a method for evaluating the function of a solution where the sensor device, the solution of a substance or a liquid substance to be sensed is ejected as micro-dots into air via the **ink**-jet nozzle comprises a biomolecules e.g. protein, DNA, antibody etc., or a physiologically active substance.

USE - The device is useful for detecting trace amounts of a substance e.g. biomolecules or other organic material.

ADVANTAGE - The device is highly sensitive and functions on a real time basis. The device comprises uniform, high quality film on sensor electrodes. The method comprises the accurate application of a great number of biological samples to be evaluated onto the plural minute sensor electrode dots in a short time and efficiently.

DESCRIPTION OF DRAWING(S) - The diagram illustrates how minute electro-conductive polymer electrodes are formed using an **ink**-jet.

Dwg.1/7

FS CPI EPI GMPI

FA AB; GI

MC CPI: A06-A00E2; A06-A00E3; A09-A03; A11-B05; A12-E13; A12-E14; A12-V03C2; B04-C03; B04-E01; B04-G01; B04-N04; B11-C08D1; **B12-K04;**  
**D05-H09; D05-H11; D05-H12; G05-F03**

EPI: S03-E03C1; S03-E14; **S03-E14H4**

TECH UPTX: 19990517

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Sensor: The solution of a material of the thin film comprises a composition resulting from the dissolution of an electro-conductive polymer in a solvent, a solution of a silicone-based surface modifying agent and/or a mixture resulting from dissolution of a thiol compound in a solvent and gold thin films are formed on the surface of the electrodes. The solution of a substance or a liquid substance to be sensed is ejected into the air via an **ink**-jet nozzle to fall as micro-dots on the surface of organic thin membranes formed on the microelectrodes so that the substance is submitted to evaluation. The electrodes and electric circuit are formed on a plastic substrate (especially comprising poly-silicone thin film transistors).

TECHNOLOGY FOCUS - POLYMERS - Preferred Sensor: The solution of a material of the thin film comprises a composition resulting from the dissolution of an electro-conductive polymer in a solvent. The electrodes and electric circuit are formed on a plastic substrate (especially comprising poly-silicone thin film transistors).

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Sensor: The solution comprises a silicone-based surface modifying agent and/or a mixture

resulting from dissolution of a thiol compound in a solvent and gold thin films are formed on the surface of the electrodes. The electrodes and electric circuit are formed on a plastic substrate (especially comprising poly-silicone thin film transistors).

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Sensor: The solution of a substance or a liquid substance to be sensed is ejected into the air via an **ink-jet** nozzle to fall as micro-dots on the surface of organic thin membranes formed on the microelectrodes so that the substance is submitted to evaluation.

ABEX

EXAMPLE - No examples given.

L107 ANSWER 24 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN **1999-045630** [04] WPIX

CR 1996-391979 [39]; 1997-042462 [04]; 1997-205167 [19]; 1997-271965 [24];  
1997-300212 [28]; 1997-300215 [28]; 1997-300216 [28]; 1997-300217 [28];  
1997-437340 [41]; 1997-491848 [46]; 1998-123168 [12]; 1998-181074 [17];  
1998-242482 [22]; 1998-242483 [22]; 1998-378966 [33]; 1998-379607 [33];  
1998-413934 [35]; 1998-545238 [47]; 1999-044840 [04]; 1999-044841 [04];  
1999-045635 [04]; 1999-080592 [07]; 1999-083437 [08]; 1999-315034 [27];  
1999-529587 [45]; 1999-542426 [46]; 1999-580170 [49]; 1999-589947 [50];  
2000-037250 [03]; 2000-051883 [04]; 2000-223104 [19]; 2000-301980 [26];  
2001-006243 [01]; 2001-256785 [26]; 2001-264939 [27]; 2001-326774 [34];  
2001-406924 [43]; 2001-513760 [56]; 2001-520963 [57]; 2001-541101 [60];  
2001-549252 [61]; 2001-610628 [70]; 2002-054336 [07]; 2002-121078 [16];  
2002-360599 [39]; 2002-391952 [42]; 2002-546529 [58]

DNN **N1999-033246**

TI Fluidic and electrical adaptor for alternate **ink** delivery units  
- has printing system using **ink cartridges** that are  
replaced by adaptor feeding **ink** and electrical signals from  
remote source.

DC P75 T04

IN BULLOCK, M L; CHILDERS, W D; GASVODA, E L; PAWLOWSKI, N E;  
TALPOS, O A; COWGER, B; TALPOS, O; HMEJAR, S M; MERRILL, D O

PA (HEWP) HEWLETT-PACKARD CO; (BULL-I) BULLOCK M L;  
(CHIL-I) CHILDERS W D; (GASV-I) GASVODA E L; (PAWL-I) PAWLOWSKI N E;  
(TALP-I) TALPOS O

CYC 29

PI WO 9855318 A1 19981210 (199904)\* EN 71p B41J002-175 <--

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: CN JP KR US

EP 940260 A1 19990908 (199941) EN

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI

JP 11348308 A 19991221 (200010) 15p

EP 994779 A1 20000426 (200025) EN B41J002-175 <--

R: DE ES GB

US 6074042 A 20000613 (200035) B41J002-14 <--

CN 1259086 A 20000705 (200052) B41J002-175 <--

US 6130695 A 20001010 (200052) B41J002-175 <--

CN 1273553 A 20001115 (200115) B41J002-175 <--

KR 2001013263 A 20010226 (200154) B41J002-175 <--

KR 2001013264 A 20010226 (200154) B41J002-175 <--

US 6322205 B1 20011127 (200175) B41J002-175 <--

US 2002024571 A1 20020228 (200220) # B41J002-175 <--

JP 2002513340 W 20020508 (200234) 89p B41J002-175 <--

EP 1219448 A2 20020703 (200251) EN B41J002-175 <--

R: DE ES GB

ADT WO 9855318 A1 WO 1998-US8887 19980511; EP 940260 A1 EP 1999-301568

19990302; JP 11348308 A JP 1999-53696 19990302; EP 994779 A1 EP

1998-922083 19980511, WO 1998-US8887 19980511; US 6074042 A US 1997-871566

19970604; CN 1259086 A CN 1998-805764 19980511; US 6130695 A CIP of US

1995-429915 19950427, CIP of US 1995-566818 19951204, CIP of US  
 1997-785580 19970121, CIP of US 1997-869151 19970604, US 1998-34874  
 19980304; CN 1273553 A CN 1998-805770 19980603; KR 2001013263 A KR  
 1999-711255 19991201; KR 2001013264 A KR 1999-711256 19991201; US 6322205  
 B1 CIP of US 1997-785580 19970121, CIP of US 1997-871566 19970604, CIP of  
 US 1998-34874 19980304, WO 1998-US8887 19980511, US 1998-125086 19980807;  
 US 2002024571 A1 Cont of US 1998-125086 19980807, US 2001-975295 20011010;  
 JP 2002513340 W WO 1998-US8887 19980511, JP 1999-502413 19980511; EP  
 1219448 A2 Div ex EP 1998-922083 19980511, EP 2002-75897 19980511  
 FDT EP 994779 A1 Based on WO 9855318; US 6130695 A CIP of US 5812156, CIP of  
 US 5825387, CIP of US 5844580, CIP of US 5900896; US 6322205 B1 CIP of US  
 5812156, CIP of US 6074042, CIP of US 6130695, Based on WO 9855318; JP  
 2002513340 W Based on WO 9855318; EP 1219448 A2 Div ex EP 994779  
 PRAI US 1998-34874 19980304; US 1997-871566 19970604; US 1995-429915  
 19950427; US 1995-566818 19951204; US 1997-785580 19970121; US  
 1997-869151 19970604; US 1998-125086 19980807; US 2001-975295  
 20011010  
 IC ICM B41J002-14; B41J002-175  
 AB WO 9855318 A UPAB: 20021031

The printing system has a number of print heads that are supplied with  
**ink** from replaceable **cartridges**. The **cartridges**  
 include an electrical system that allows **ink** levels to be  
 monitored. The normal **cartridges** have connections to an  
**ink** feed line (20) and a pressurised air line (20) used to  
 pressurise a **cartridge**. The electrical system has a connector  
 (100) used to read data from the **cartridge**. This may include the  
 original **ink** volume and an updates for a writeable memory.

An adaptor (145,151) connects to the **ink** and electrical  
 connector and leads to a large external **reservoir** (146) and  
 signal supply (155) that simulates the normal **cartridge** signals.

ADVANTAGE - Allows the conventional **cartridge** to be  
 replaced by larger sources of **ink** while maintaining normal  
 operationl.

Dwg.1/22

FS EPI GMPI  
 FA AB; GI  
 MC EPI: T04-G02; T04-G10A

L107 ANSWER 25 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 1999-044841 [04] WPIX  
 CR 1997-300212 [28]; 1999-044840 [04]; 1999-045630 [04]; 2001-610628 [70];  
 2002-546529 [58]  
 DNN N1999-032739  
 TI Replaceable **ink** container for **inkjet** printer  
 - has fixed housing that engages linear actuator to prevent its movement  
 from one position to another position where **ink** exhaust signal  
 is generated.  
 DC P75 T04  
 IN BARINAGA, J A; CAMERON, J; CHILDERS, W D; UNDERWOOD, J A  
 PA (HEWP) HEWLETT-PACKARD CO; (BARI-I) BARINAGA J A;  
 (CAME-I) CAMERON J; (CHIL-I) CHILDERS W D; (UNDE-I) UNDERWOOD J A  
 CYC 22  
 PI US 5844580 A 19981201 (199904)\* 12p B41J002-195 <--  
 WO 9855321 A1 19981210 (199904) EN B41J002-175 <--  
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
 W: CN JP KR  
 EP 1007364 A1 20000614 (200033) EN B41J002-175 <--  
 R: DE ES FR GB IT  
 CN 1259089 A 20000705 (200052) B41J002-175 <--  
 KR 2001013253 A 20010226 (200154) B41J002-175 <--  
 JP 2002508721 W 20020319 (200222) 32p B41J002-175 <--  
 EP 1007364 B1 20020918 (200269) EN B41J002-175 <--  
 R: DE ES FR GB IT

ADT US 5844580 A CIP of US 1995-566819 19951204, US 1997-869151 19970604; WO 9855321 A1 WO 1998-US11363 19980602; EP 1007364 A1 EP 1998-925197 19980602, WO 1998-US11363 19980602; CN 1259089 A CN 1998-805768 19980602; KR 2001013253 A KR 1999-711244 19991201; JP 2002508721 W WO 1998-US11363 19980602, JP 1999-502788 19980602; EP 1007364 B1 EP 1998-925197 19980602, WO 1998-US11363 19980602

FDT EP 1007364 A1 Based on WO 9855321; JP 2002508721 W Based on WO 9855321; EP 1007364 B1 Based on WO 9855321

PRAI US 1997-869151 19970604; US 1995-566819 19951204

IC ICM **B41J002-175; B41J002-195**

AB US 5844580 A UPAB: 20021031

The **container** (20) includes an **ink reservoir** (24') with an outlet (28') which is in connection with fluid inlet of printer. A fixed housing is provided for engaging a linear actuator (40). The linear actuator is moved between two different positions.

An **ink** exhaust signal is generated at the first position.

The housing engages the actuator to prevent movement of actuator from second position to first position.

ADVANTAGE - Provides reliable technique for determining **ink** exhaust condition.

Dwg.5/6

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-L09

L107 ANSWER 26 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-585557 [50] WPIX

DNN N1998-456479

TI Replaceable **ink cartridge** for **inkjet** printing system - has memory storing **ink** identity whereby **ink** usability is determined by printer decoding identity parameter using key on casing as identification aid.

DC P75 T04

IN BULLOCK, M L; CHILDERS, W D; HMEAR, S M; MERRILL, D O; UNDERWOOD, J A

PA (HEWP) HEWLETT-PACKARD CO

CYC 26

PI EP 878307 A2 19981118 (199850)\* EN 11p B41J002-175 <--  
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI

JP 10323995 A 19981208 (199908) 8p B41J002-175 <--

EP 878307 B1 20020313 (200219) EN B41J002-175 <--  
R: DE FR GB IT

DE 69804148 E 20020418 (200234) B41J002-175 <--

ADT EP 878307 A2 EP 1998-303549 19980506; JP 10323995 A JP 1998-130745 19980513; EP 878307 B1 EP 1998-303549 19980506; DE 69804148 E DE 1998-604148 19980506, EP 1998-303549 19980506

FDT DE 69804148 E Based on EP 878307

PRAI US 1997-857722 19970516

IC ICM **B41J002-175**

AB EP 878307 A UPAB: 19981223

The **ink cartridge** has a casing with a fluidic coupler (20) coupled to a **reservoir** for holding **ink** and an electrical connector (24). A memory is coupled (26) to the connector for storing an identity parameter from which an identity of **ink** stored in the **reservoir** can be identified.

A key (62,64) on casing indicates that an **ink** type in the **reservoir** is within the first class of compatible **ink** types, but not that it is usable with the printer (10). Usability is determined by the printer decoding the identity parameter and that the **ink** identity is one that can be used by the printer.

USE - For assuring **inkjet** printer will only operate when replacement **ink cartridge** has been inserted containing

**ink** which is compatible with the printer.

ADVANTAGE - Prevents insertion of replacement **ink cartridge** into printer if it contains severely incompatible **ink**. Allows initial insertion of replaceable **ink cartridge** if **cartridge** contains incompatible **ink** without creating irreversible printer damage.

Dwg.3/5

FS EPI GMPI  
FA AB; GI  
MC EPI: T04-G02; T04-L09

L107 ANSWER 27 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-559288 [48] WPIX

DNN N1998-436133

TI **Inkjet** printer with multiple **cartridge** printhead assembly - has memory element with array of **ink** injection elements containing parameters that relate to characteristics of first and second array.

DC P75 T04

IN CHILDERS, W D; LEE, T; MARLER, J D; PAWLOWSKI, N E; SEU, P D

PA (HEWP) HEWLETT-PACKARD CO

CYC 27

PI EP 875379 A2 19981104 (199848)\* EN 23p B41J002-05 <--  
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
RO SE SI

JP 10309804 A 19981124 (199906) 14p B41J002-01 <--

US 5975677 A 19991102 (199953) B41J002-145 <--

ADT EP 875379 A2 EP 1998-302607 19980402; JP 10309804 A JP 1998-113651  
19980423; US 5975677 A US 1997-846969 19970430

PRAI US 1997-846969 19970430

IC ICM B41J002-01; B41J002-05; B41J002-145

ICS B41J002-14; B41J002-15; B41J002-16;

B41J002-175

AB EP 875379 A UPAB: 19981203

The printing system includes two arrays of **ink** ejection elements (82') formed on substrate surfaces for ejecting **ink** droplets of a first (21) and a second **ink** (23), respectively. A memory element associated with the first **ink** injection array contains parameters that relate droplet ejection characteristics of the first and second arrays of the **ink** ejection elements.

A support structure fixes the first and the second arrays of **ink** ejection elements together. The two substrate surfaces are formed on separate substrates or on the same substrate.

ADVANTAGE - Provides accurate method of ensuring precise dot to dot registration between multiple colourants in **inkjet** printer.

Dwg.9/13

FS EPI GMPI  
FA AB; GI  
MC EPI: T04-G02; T04-G10A

L107 ANSWER 28 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-457863 [40] WPIX

DNN N1998-357396 DNC C1998-138472

TI Multiple diagnosis test element - has a carrier printed in a screen with fluid droplets to give test points for the sample fluids to give an image at a fluorescent scanner.

DC B04 D16 J04 S03

IN EICHENLAUB, U; MASCH, M

PA (BOEF) BOEHRINGER MANNHEIM GMBH; (HÖFF) ROCHE DIAGNOSTICS GMBH

CYC 35

PI DE 19707204 A1 19980827 (199840)\* 19p G01N031-22 <--

WO 9836833 A1 19980827 (199841) DE B01L003-02

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE



W: AU BR BY CA CN CZ HU IL JP KR MX NO NZ PL RU UA US  
 AU 9866229 A 19980909 (199905) B01L003-02  
 EP 961654 A1 19991208 (200002) DE B01L003-02  
 R: AT CH DE ES FR GB IT LI NL  
 JP 2001518181 W 20011009 (200174) 38p G01N035-02 <--  
 ADT DE 19707204 A1 DE 1997-19707204 19970224; WO 9836833 A1 WO 1998-EP1022  
 19980223; AU 9866229 A AU 1998-66229 19980223; EP 961654 A1 EP 1998-908108  
 19980223, WO 1998-EP1022 19980223; JP 2001518181 W JP 1998-536276  
 19980223, WO 1998-EP1022 19980223  
 FDT AU 9866229 A Based on WO 9836833; EP 961654 A1 Based on WO 9836833; JP  
 2001518181 W Based on WO 9836833  
 PRAI DE 1997-19707204 19970224  
 IC ICM B01L003-02; G01N031-22; G01N035-02  
 ICS B41J002-01; B41J013-32; G01N001-00;  
 G01N033-52; G01N033-53; G01N033-543;  
 G01N035-10  
 AB DE 19707204 A UPAB: 19981014  
 System for producing a multiple diagnostic test element comprises a  
 carrier which has an analysis zone to apply diagnostic test points, with  
 one or more limit edges for positioning the carrier in each direction.  
 The carrier, in an initial holder, is positioned through one or more limit  
 edges. An initial printer head is positioned over the holder, to apply  
 droplets of an initial fluid on the analysis zone. The holder is moved  
 laterally in a sliding movement, for the carrier to be transferred to a  
 second holder and positioned by one or more limit edges. A second printer  
 head, over the carrier, applies droplets of a second fluid to the analysis  
 zone. A further unit slides the holder laterally with positioning. A  
 transport system moves the carrier in the holders. A control determines  
 the actions of the transport system, the holders, positioning units and  
 the printer heads.  
 Also claimed are (1) a multiple test element, with an analysis zone  
 containing a number of circular test points in a given screen pattern; the  
 dia. of the test points is at most 350  $\mu$ m, and their centres deviate by  
 at most 40  $\mu$ m from the screen pattern; and (2) an analysis operation  
 with the test elements, where a sample fluid is applied to the analysis  
 zone, and an image is taken of the test point screen; the image, showing  
 the test points, is evaluated, to determine the presence and/or  
 concentration of one or more substances.  
 USE - The test points contain antibodies e.g. against thyroid  
 stimulant hormones (TSH), dioxin, hepatitis C, hepatitis B, HIV, HBsAG.  
 ADVANTAGE - The system gives test elements with an accurate pattern  
 of extremely small test points.  
 Dwg.1/12  
 FS CPI EPI  
 FA AB; GI; DCN -  
 MC CPI: B04-F11; B04-G01; B04-J01; B11-C07; B11-C07A; B12-K04;  
 D05-H06; D05-H09; D05-H11;  
 J04-B01  
 EPI: S03-E09E; S03-E14H4

L107 ANSWER 29 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-413934 [35] WPIX  
 CR 1996-391979 [39]; 1997-042462 [04]; 1997-205167 [19]; 1997-271965 [24];  
 1997-300215 [28]; 1997-300216 [28]; 1997-300217 [28]; 1997-437340 [41];  
 1997-491848 [46]; 1998-123168 [12]; 1998-181074 [17]; 1998-242482 [22];  
 1998-242483 [22]; 1998-378966 [33]; 1998-379607 [33]; 1998-545238 [47];  
 1999-045630 [04]; 1999-045635 [04]; 1999-080592 [07]; 1999-083437 [08];  
 1999-315034 [27]; 1999-529587 [45]; 1999-542426 [46]; 1999-580170 [49];  
 1999-589947 [50]; 2000-037250 [03]; 2000-051883 [04]; 2000-223104 [19];  
 2000-301980 [26]; 2001-006243 [01]; 2001-256785 [26]; 2001-264939 [27];  
 2001-326774 [34]; 2001-406924 [43]; 2001-513760 [56]; 2001-520963 [57];  
 2001-541101 [60]; 2001-549252 [61]; 2001-610628 [70]; 2002-054336 [07];  
 2002-121078 [16]; 2002-360599 [39]; 2002-391952 [42]; 2002-498965 [53];

2002-546529 [58]

DNN **N1998-322162**

TI Replaceable **ink container** for use in **ink jet** printing system - includes **container** interfacing features positioned to engage corresponding **ink container** receiving station interfacing features, and information storage device that provides information indicative of volume of **ink**.

DC P75 T04

IN BARINAGA, J A; BULLOCK, M L; **CHILDERS, W D**; CLARK, J E; COWGER, B; GAST, P D; HMELAR, S M; MERRILL, D O; UNDERWOOD, J A

PA (**HEWP**) **HEWLETT-PACKARD CO**; (BARI-I) BARINAGA J A; (BULL-I) BULLOCK M L; (CHIL-I) CHILDERS W D; (CLAR-I) CLARK J E; (COWG-I) COWGER B; (GAST-I) GAST P D; (HMEI-I) HMELAR S M; (MERR-I) MERRILL D O; (UNDE-I) UNDERWOOD J A

CYC 19

PI WO 9831548 A1 19980723 (199835)\* EN 42p B41J025-34 <--  
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
W: DE GB JP

US 5956057 A 19990921 (199945) B41J002-14 <--

EP 968090 A1 20000105 (200006) EN

R: DE FR GB

JP 2001509103 W 20010710 (200144) 48p B41J002-175 <--

US 2001015738 A1 20010823 (200151) B41J002-14 <--

US 6305795 B2 20011023 (200165) B41J002-175 <--

ADT WO 9831548 A1 WO 1997-US22873 19971212; US 5956057 A CIP of US 1996-706061 19960830, CIP of US 1997-785580 19970121, CIP of US 1997-789957 19970130, US 1997-869152 19970604; EP 968090 A1 EP 1997-952404 19971212, WO 1997-US22873 19971212; JP 2001509103 W WO 1997-US22873 19971212, JP 1998-534355 19971212; US 2001015738 A1 CIP of US 1994-363188 19941222, CIP of US 1996-584499 19960108, CIP of US 1996-706061 19960830, CIP of US 1997-785580 19970121, CIP of US 1997-789957 19970130, Cont of US 1997-869152 19970604, US 1999-328315 19990608; US 6305795 B2 CIP of US 1995-429915 19950427, CIP of US 1996-584499 19960108, CIP of US 1996-706061 19960830, CIP of US 1997-785580 19970121, CIP of US 1997-789958 19970130, Cont of US 1997-869152 19970604, US 1999-328315 19990608

FDT US 5956057 A CIP of US 5812156; EP 968090 A1 Based on WO 9831548; JP 2001509103 W Based on WO 9831548; US 2001015738 A1 CIP of US 5491540, CIP of US 5699091, CIP of US 5812156, Cont of US 5956057, CIP of US 6142617; US 6305795 B2 CIP of US 5699091, CIP of US 5812156, CIP of US 5825387, Cont of US 5956057, CIP of US 6142617

PRAI US 1997-869152 19970604; US 1997-785580 19970121; US 1997-789957 19970130; US 1996-706061 19960830; US 1994-363188 19941222; US 1996-584499 19960108; US 1999-328315 19990608; US 1995-429915 19950427; US 1997-789958 19970130

IC ICM **B41J002-14; B41J002-175; B41J025-34**

ICS **B41J002-175**

AB WO 9831548 A UPAB: 20021018

The **container** includes a number of **container** interfacing features positioned on the **ink container** to engage corresponding receiving station interfacing features. An information storage device associated with the **ink container** electrically couples to the printing system and provides information indicative of a volume of **ink** within the **ink container**. The **container** interfacing features includes a fluid outlet configured to connect to a corresponding fluid inlet in a receiving station to allow **ink** to flow from the **ink container** to a printhead.

A number of **container** electrical contacts are configured to engage corresponding receiving station electrical contacts to allow the information storage device to electrically couple to the printing system.

ADVANTAGE - Allows different sizes of **ink container** to be installed at particular location of receiving station. Ability to

conveniently, reliably, and cost-effectively, accommodate range of ink usage rates.

Dwg.5/6

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-L09

L107 ANSWER 30 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-378968 [33] WPIX

DNN N1998-296323

TI Replaceable ink cartridge for ink jet printing system - has ink level annunciator connected to cartridge connector to generate signal to enable printing after ink reservoir is depleted and replaced with second reservoir.

DC P75 T04 W05

IN CHILDERS, W D; COWGER, B

PA (HEWP) HEWLETT-PACKARD CO

CYC 27

PI EP 854045 A2 19980722 (199833)\* EN 10p B41J002-175 <--  
R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO  
SE SI

JP 10202900 A 19980804 (199841) 8p B41J002-175 <--

US 5860363 A 19990119 (199911) B41J002-175 <--

KR 98070630 A 19981026 (199953) B41J002-175 <--

EP 854045 B1 20000906 (200044) EN B41J002-175 <--

R: DE FR GB

DE 69703023 E 20001012 (200059) B41J002-175 <--

ADT EP 854045 A2 EP 1997-310113 19971215; JP 10202900 A JP 1998-8553 19980120;  
US 5860363 A US 1997-785103 19970121; KR 98070630 A KR 1998-1524 19980120;  
EP 854045 B1 EP 1997-310113 19971215; DE 69703023 E DE 1997-603023  
19971215, EP 1997-310113 19971215

FDT DE 69703023 E Based on EP 854045

PRAI US 1997-785103 19970121

IC ICM B41J002-175

ICS B41J025-34

AB EP 854045 A UPAB: 19980819

The cartridge includes a chassis (16) removably mated with the ink supply station defining an ink passage (66) and an cartridge electrical connector matable with the printer electrical connector. An ink reservoir (14) has a chamber of ink of a selected volume.

The reservoir has an ink outlet (76) in line with the passage. The chassis has an ink level annunciator (20) connected to the cartridge connector to generate a signal enabling printing after a total volume of ink greater than a given volume, for example when the reservoir is empty. It is then replaced with a second reservoir, refilled or connected to an additional reservoir.

ADVANTAGE - Avoids printing with ink beyond its useful shelf life.

Dwg.3/5

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-G10A; W05-A

L107 ANSWER 31 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-378967 [33] WPIX

DNN N1998-296322

TI Replaceable reservoir cartridge for ink-jet printer - has parameters in processor which on being accessed and utilised by procedure in processor cause printing of several media sheets to enable flushing of first ink from ink-jet pathways.

DC P75 T01 T04  
 IN CHILDERS, W D; PAWLOWSKI, N E  
 PA (HEWP) HEWLETT-PACKARD CO  
 CYC 25  
 PI EP 854044 A2 19980722 (199833)\* EN 8p B41J002-175 <--  
 R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO  
 SE SI  
 EP 854044 B1 20010404 (200120) EN B41J002-175 <--  
 R: DE FR GB  
 DE 69704478 E 20010510 (200134) B41J002-175 <--  
 US 6375301 B1 20020423 (200232) B41J002-165 <--  
 ADT EP 854044 A2 EP 1997-310112 19971215; EP 854044 B1 EP 1997-310112  
 19971215; DE 69704478 E DE 1997-604478 19971215, EP 1997-310112 19971215;  
 US 6375301 B1 US 1997-785579 19970121  
 FDT DE 69704478 E Based on EP 854044  
 PRAI US 1997-785579 19970121  
 IC ICM B41J002-165; B41J002-175  
 ICS B41J025-34; B41J029-393  
 AB EP 854044 A UPAB: 19980819  
 The **cartridge** has a supply of fluid for flushing the first  
**ink** from the pathways in the **inkjet** printer (1). A  
 memory (20) couples the processor (40) in the printer on installation of  
 the replaceable **reservoir cartridge** has a parameters.  
 The parameters on being accessed and utilised by a procedure stored  
 in the **inkjet** apparatus cause the printing of several media  
 sheets to enable a flushing of the first **ink** from the  
**inkjet** printer pathways. The first **ink** is incompatible  
 with the second **ink** and the supply of fluid includes a solvent  
 for the first **ink**.  
 ADVANTAGE - Flushes unwanted **ink** from pathways of  
**inkjet** printer.  
 Dwg.3/3  
 FS EPI GMPI  
 FA AB; GI  
 MC EPI: T01-C05A; T01-J08A; T04-G02; T04-G10A; T04-G10E

L107 ANSWER 32 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 1998-378966 [33] WPIX  
 CR 1996-391979 [39]; 1997-042462 [04]; 1997-205167 [19]; 1997-271965 [24];  
 1997-300215 [28]; 1997-300216 [28]; 1997-300217 [28]; 1997-437340 [41];  
 1997-491848 [46]; 1998-123168 [12]; 1998-181074 [17]; 1998-242482 [22];  
 1998-242483 [22]; 1998-379607 [33]; 1998-413934 [35]; 1998-545238 [47];  
 1999-045630 [04]; 1999-045635 [04]; 1999-080592 [07]; 1999-083437 [08];  
 1999-315034 [27]; 1999-529587 [45]; 1999-542426 [46]; 1999-580170 [49];  
 1999-589947 [50]; 2000-037250 [03]; 2000-051883 [04]; 2000-223104 [19];  
 2000-301980 [26]; 2001-006243 [01]; 2001-256785 [26]; 2001-264939 [27];  
 2001-326774 [34]; 2001-406924 [43]; 2001-520963 [57]; 2001-541101 [60];  
 2001-549252 [61]; 2001-610628 [70]; 2002-054336 [07]; 2002-121078 [16];  
 2002-360599 [39]; 2002-391952 [42]

DNN N1998-296321  
 TI Printing system with replaceable **cartridge** - has processor for  
 determining current **ink** supply value from cumulative usage value  
 stored on **cartridge** memory and drop volume parameter stored on  
 printhead memory.

DC P75 T01 T04  
 IN BULLOCK, M L; CHILDERS, W D  
 PA (HEWP) HEWLETT-PACKARD CO  
 CYC 26  
 PI EP 854043 A2 19980722 (199833)\* EN 14p B41J002-175 <--  
 R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO  
 SE SI  
 JP 10217509 A 19980818 (199843) 9p B41J002-175 <--  
 US 5812156 A 19980922 (199845) B41J029-393 <--

EP 854043 B1 20010404 (200120) EN B41J002-175 <--  
 R: DE FR GB IT  
 DE 69704477 E 20010510 (200134) B41J002-175 <--  
 ADT EP 854043 A2 EP 1997-310111 19971215; JP 10217509 A JP 1998-9439 19980121;  
 US 5812156 A US 1997-785580 19970121; EP 854043 B1 EP 1997-310111  
 19971215; DE 69704477 E DE 1997-604477 19971215, EP 1997-310111 19971215  
 FDT DE 69704477 E Based on EP 854043  
 PRAI US 1997-785580 19970121  
 IC ICM B41J002-175; B41J029-393  
 ICS B41J005-30; B41J025-34  
 AB EP 854043 A UPAB: 20020906  
 The printing system includes a replaceable **cartridge** (20)  
 housing a supply of (26) consumable marking media. A memory is also  
 included for recording printer related parameters. Marks are produced on a  
 print media including printhead memory (16) to record the print related  
 parameters.  
 A processor (34 and 35) is coupled to the **cartridge** memory  
 and the printhead memory and responds to the parameters read from both to  
 derive a printer function control value dependent on a marking media  
 parameter from the **cartridge** memory and a print related  
 parameter from the printhead memory.  
 ADVANTAGE - Has improved capability for adjusting printer control  
 functions.  
 Dwg.1B/7  
 FS EPI GMPI  
 FA AB; GI  
 MC EPI: T01-C05A; T04-G02; T04-G10A

L107 ANSWER 33 OF 39 WPIX (C) 2002 THOMSON DERWENT  
 AN 1998-181075 [17] WPIX  
 DNN N1998-143330  
 TI Printer with replaceable consumable for forming images on print media -  
 determines replacement condition for replaceable consumable and holds  
 consumable image information in store.  
 DC P75 T04  
 IN COWGER, B  
 PA (HEWP) HEWLETT-PACKARD CO  
 CYC 20  
 PI EP 832749 A2 19980401 (199817)\* EN 9p B41J002-175 <--  
 R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE  
 JP 10109460 A 19980428 (199827) 8p B41J029-00 <--  
 US 6102508 A 20000815 (200041) B41J002-195 <--  
 ADT EP 832749 A2 EP 1997-306866 19970904; JP 10109460 A JP 1997-260341  
 19970925; US 6102508 A US 1996-721815 19960927  
 PRAI US 1996-721815 19960927  
 REP No-SR.Pub  
 IC ICM B41J002-175; B41J002-195; B41J029-00  
 ICS B41J029-42; G03G021-00  
 AB EP 832749 A UPAB: 19980428  
 The printer includes a device (21) for determining a condition for  
 printing an image of a replaceable consumable (22) such as **ink**  
 or toner. A storage device (24) contains consumable image information. An  
 image (14) is formed on print media (12) of the consumable when an image  
 printing condition occurs. The storage device is located on the  
 consumable.  
 A host provides image information to the printer. The host contains  
 consumable image information. The image is based on image information  
 provided by the host. A replacement condition occurs when the consumable  
 is empty. The consumable is identified on the basis of an image on the  
 media.  
 USE - For **ink** jet printer.  
 ADVANTAGE - Minimises number of times consumable is replaced by  
 selecting correct consumable each time. Ensures that consumable is

suitable for user application. Efficient.

Dwg.1/3

FS EPI GMPI

FA AB; GI

MC EPI: T04-G02; T04-L05

L107 ANSWER 34 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1998-054680 [06] WPIX

DNN N1998-043313

TI **Ink** jet recording apparatus - controls to record image on medium by outputting record data modulated by modulating device synchronously with ejection timing determined by timing control device.

DC P75 T01 T04

IN IWASAKI, O; KOITABASHI, N; NISHIKORI, H; OTSUKA, N; TAKAHASHI, K

PA (CANO) CANON KK

CYC 25

PI EP 816102 A2 19980107 (199806)\* EN 40p B41J002-205 <--

R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

AU 9727534 A 19980115 (199809) B41J002-07 <--

JP 10071730 A 19980317 (199821) 24p B41J002-205 <--

CA 2208831 A 19971227 (199825) B41J002-11 <--

KR 98000921 A 19980330 (199901) B41J002-04 <--

MX 9704809 A1 19980701 (200012) G03G013-00 <--

KR 242783 B1 20000302 (200122) B41J002-04 <--

AU 733178 B 20010510 (200130) B41J002-07 <--

US 6283569 B1 20010904 (200154) B41J002-205 <--

CN 1174126 A 19980225 (200171) B41J002-07 <--

CA 2208831 C 20020409 (200233) EN B41J002-11 <--

ADT EP 816102 A2 EP 1997-304576 19970626; AU 9727534 A AU 1997-27534 19970626; JP 10071730 A JP 1997-151359 19970609; CA 2208831 A CA 1997-2208831 19970625; KR 98000921 A KR 1997-28336 19970627; MX 9704809 A1 MX 1997-4809 19970626; KR 242783 B1 KR 1997-28336 19970627; AU 733178 B AU 1997-27534 19970626; US 6283569 B1 US 1997-882033 19970625; CN 1174126 A CN 1997-114858 19970627; CA 2208831 C CA 1997-2208831 19970625

FDT AU 733178 B Previous Publ. AU 9727534

PRAI JP 1997-151359 19970609; JP 1996-167752 19960627

REP No-SR.Pub

IC ICM B41J002-04; B41J002-07; B41J002-11;  
B41J002-205; G03G013-00

ICS B41J002-05

AB EP 816102 A UPAB: 19980209

The apparatus includes an **ink** ejection amount changing device for changing an **ink** ejection amount of each recording element of the recording head. A timing control device for controlling an **ink** ejection timing of the **ink** ejection amount changing device. A modulating device is used for modulating record data. A control device controls to record an image on the recording medium by outputting the record data modulated by the modulating device synchronously with an ejection timing determined by the timing control device.

The timing control device determines at least two **ink** ejection timings including an **ink** ejection timing for recording a larger diameter dot with the recording element and an **ink** ejection timing for ejecting smaller diameter dots with the recording element.

USE - For recording image on recording medium by ejecting **ink** from each of number of recording elements of recording head.

ADVANTAGE - Capable of recording image with different tonal levels in accordance with record data. Capable of modulating dot diameter during one scan with simple structure. Capable of easy recording image by using same data control algorithm even for multi-path record.

Dwg.1/26

FS EPI GMPI

FA AB; GI

MC EPI: T01-C05A; T04-G02; T04-G10E

L107 ANSWER 35 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1997-395740 [37] WPIX

CR 1996-116535 [12]; 2000-386808 [32]

DNN **N2000-289599**

TI Replacement of parts/consumable supply for **ink** jet printer, copier - having connector in receptacle coupled with processor and second connector mating with first connector and memory for data transfer regarding **cartridge** usage, calibration, appts. control parameters.

DC P75 P84 S06 T01 T04 T05

IN BULLOCK, M L; **CHILDERS, W D**; GIL MIQUEL, A; HIRST, M B; STEPHENS, R D; HIRST, B M; MIQUEL, A G

PA (**HEWP**) **HEWLETT-PACKARD CO**

CYC 6

PI EP 789322 A2 19970813 (199737)\* EN 14p G06K015-00  
R: DE FR GB IT

US 5699091 A 19971216 (199805) 13p B41J029-393 <--

JP 09309213 A 19971202 (199807) 14p B41J002-175 <--

US 5835817 A 19981110 (199901) G03G015-00 <--

US 6065824 A 20000523 (200033) 8p B41J029-393 <--

ADT EP 789322 A2 EP 1997-300003 19970102; US 5699091 A CIP of US 1994-363188 19941222, US 1996-584499 19960108; JP 09309213 A JP 1997-1270 19970108; US 5835817 A CIP of US 1994-363188 19941222, Div ex US 1996-584499 19960108, US 1997-901299 19970728; US 6065824 A CIP of US 1994-363188 19941222, Div ex US 1996-584499 19960108, CIP of US 1997-901299 19970728, US 1997-961852 19971031

FDT US 5699091 A CIP of US 5491540; US 5835817 A CIP of US 5491540, Div ex US 5699091; US 6065824 A CIP of US 5491540, CIP of US 5835817

PRAI US 1996-584499 19960108; US 1994-363188 19941222; US 1997-901299 19970728; US 1997-961852 19971031

IC ICM **B41J002-175; B41J029-393; G03G015-00;**  
G06K015-00

ICS **B41J029-46; G03G015-08**

AB EP 789322 A UPAB: 20000718

The replaceable parts are subject to wear or include a consumable employed during apparatus operation. The apparatus has a processor to control it. A receptacle (66) receives a replaceable part, e.g. **ink cartridge** (60). A first connector (70) associated with the receptacle is coupled to the processor.

The receptacle has a second connector (76) that mates with the first and a serial access memory connected to the second connector by a single data input output wire. The memory stores data indicating usage of the replaceable part. The processor both reads and writes data from and to the memory.

ADVANTAGE - Enables both usage and calibration data to be stored and altered, requires no modification to pre-existing physical interface between part/consumable and appts.

Dwg.5/7

FS EPI GMPI

FA AB; GI

MC EPI: S06-A04A1; S06-A20; T01-C05A; T04-G02; T04-G10; T05-G02A; T04-G10A

ABEQ US 5699091 A UPAB: 19980202

The replaceable parts are subject to wear or include a consumable employed during apparatus operation. The apparatus has a processor to control it. A receptacle (66) receives a replaceable part, e.g. **ink cartridge** (60). A first connector (70) associated with the receptacle is coupled to the processor.

The receptacle has a second connector (76) that mates with the first and a serial access memory connected to the second connector by a single data input output wire. The memory stores data indicating usage of the replaceable part. The processor both reads and writes data from and to the

memory.

ADVANTAGE - Enables both usage and calibration data to be stored and altered, requires no modification to pre-existing physical interface between part/consumable and appts.

Dwg.2/7

L107 ANSWER 36 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1996-116535 [12] WPIX

CR 1997-395740 [37]; 2000-386808 [32]

DNN N2000-289599

TI Replaceable part for printer or copier apparatus - comprises serial access memory connected to second connector of apparatus by single wire, to allow storage of usage and calibration data.

DC P75 P84 S06 T01 T04

IN HIRST, B; HIRST, B M; BULLOCK, M L; CHILDERS, W D; MIQUEL, A G; STEPHENS, R D

PA (HEWP) HEWLETT-PACKARD CO

CYC 5

PI	US 5491540	A	19960213 (199612)*	7p	G03G015-00	<--
	EP 721171	A2	19960710 (199632)	8p	G06K015-00	
	R: DE FR GB					
	EP 721171	A3	19961002 (199645)		G03G015-00	<--
	JP 08248839	A	19960927 (199649)	7p	G03G021-00	<--
	EP 743567	A2	19961120 (199651)	8p	G03G015-00	<--
	R: DE FR GB					
	EP 743568	A2	19961120 (199651)	8p	G03G015-00	<--
	R: DE FR GB					
	EP 743569	A2	19961120 (199651)	8p	G03G015-00	<--
	R: DE FR GB					
	EP 743567	B1	20000510 (200027)	EN	G03G015-00	<--
	R: DE FR GB					
	EP 743568	B1	20000510 (200027)	EN	G03G015-00	<--
	R: DE FR GB					
	EP 743569	B1	20000510 (200027)	EN	G03G015-00	<--
	R: DE FR GB					
	EP 721171	B1	20000607 (200032)	EN	G06K015-00	
	R: DE FR GB					
	US 6065824	A	20000523 (200033)	8p	B41J029-393	<--
	DE 69516850	E	20000615 (200036)		G03G015-00	<--
	DE 69516851	E	20000615 (200036)		G03G015-00	<--
	DE 69516852	E	20000615 (200036)		G03G015-00	<--
	DE 69517402	E	20000713 (200040)		G06K015-00	

ADT US 5491540 A US 1994-363188 19941222; EP 721171 A2 EP 1995-111082 19950714; EP 721171 A3 EP 1995-111082 19950714; JP 08248839 A JP 1995-336142 19951130; EP 743567 A2 EP 1996-113556 19950714; EP 743568 A2 Div ex EP 1995-111082 19950714, EP 1996-113557 19950714; EP 743569 A2 Div ex EP 1995-111082 19950714, EP 1996-113558 19950714; EP 743567 B1 Div ex EP 1995-111082 19950714, EP 1996-113556 19950714; EP 743568 B1 Div ex EP 1995-111082 19950714, EP 1996-113557 19950714; EP 743569 B1 Div ex EP 1995-111082 19950714, EP 1996-113558 19950714; EP 721171 B1 EP 1995-111082 19950714, Related to EP 1996-113556 19950714, Related to EP 1996-113557 19950714, Related to EP 1996-113558 19950714; US 6065824 A CIP of US 1994-363188 19941222, Div ex US 1996-584499 19960108, CIP of US 1997-901299 19970728, US 1997-961852 19971031; DE 69516850 E DE 1995-616850 19950714, EP 1996-113556 19950714; DE 69516851 E DE 1995-616851 19950714, EP 1996-113557 19950714; DE 69516852 E DE 1995-616852 19950714, EP 1996-113558 19950714; DE 69517402 E DE 1995-617402 19950714, EP 1995-111082 19950714

FDT EP 743567 B1 Div ex EP 721171; EP 743568 B1 Div ex EP 721171; EP 743569 B1 Div ex EP 721171 B1 Related to EP 743567, Related to EP 743568, Related to EP 743569; US 6065824 A CIP of US 5491540, CIP of US 5835817; DE 69516850 E Based on EP 743567; DE 69516851 E Based on EP 743568; DE 69516852 E Based on EP 743569; DE 69517402 E Based on EP 721171



PRAI US 1994-363188 19941222; US 1996-584499 19960108; US 1997-901299  
 19970728; US 1997-961852 19971031  
 REP No-SR.Pub; EP 48662; GB 2225468; US 4961088; US 5049898; US 5272503; US  
 5365312

IC ICM **B41J029-393**; **G03G015-00**; **G03G021-00**;  
 G06K015-00

ICS **B41J005-30**; **B41J029-00**; **B41J029-38**;  
**G06F003-12**; H04N001-21

AB US 5491540 A UPAB: 20000823

The apparatus comprises a processor for controlling the apparatus, and a receptacle for receiving a replaceable part. A

first connector is associated with the one receptacle and coupled to the processor. A replaceable part is juxtaposed to the receptacle and includes a second connector that mates with the first connector.

The replaceable part includes a serial access memory that is connected to the second connector by only a single wire. The processor device enabled thereby to both read and write data from and to the serial access memory. The serial access memory stores data at least indicative of usage of the replaceable part.

ADVANTAGE - Usage of the single wire memory enables direct substitution of the serial access memory in place of a presently provided fuse, without requiring changes to the physical interface between the replaceable part and the connectors which enable mating of the replaceable part with the apparatus.

Dwg.2/3

FS EPI GMPI

FA AB; GI

MC EPI: S06-A14C; S06-A19; S06-A20; T01-H03; T04-G; T04-L09; T04-G02;  
 T04-G10A

L107 ANSWER 37 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1995-151744 [20] WPIX

DNN N1995-119317 DNC C1995-070072

TI Degradable recording device including pen - includes degradable plaster portion and contains nutritive substances to promote proliferation of bacteria..

DC A84 D16 G02 P75 P77

PA (CANO) CANON KK

CYC 1

PI JP 07076198 A 19950320 (199520)\* 5p B43L025-00

ADT JP 07076198 A JP 1993-223541 19930908

PRAI JP 1993-223541 19930908

IC ICM B43L025-00

ICS **B41J002-175**; B43K007-02

AB JP 07076198 A UPAB: 19950530

A recording device, a pen, and its **ink** refill has a quantity of **ink**, an **ink** holder, and an **ink** recording portion, and also biodegradable plastic portion and contains nutritive substances for promoting the proliferation of bacteria.

The **ink** absorber is eg composed of polyurethane resin.

ADVANTAGE - The recording device, the pen, and its **ink** refill are plastic-structured, so they can be degraded more securely and promptly.

Dwg.2/4

FS CPI GMPI

FA AB; GI

MC CPI: A09-A07; A12-D05B; **D05-H04**; G02-A04

L107 ANSWER 38 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1992-105599 [14] WPIX

DNN N1992-079097 DNC C1992-049397

TI **Ink** storage unit for use with **ink** jet printer -

includes indicator system for monitoring time and temp. exposure.

DC A97 D16 G05 P75 Q31 Q34 T04  
 IN WEHL, W  
 PA (SIEI) SIEMENS AG; (EAST) EASTMAN KODAK CO  
 CYC 1  
 PI DE 4030053 A 19920326 (199214)\* 6p  
 DE 4030053 C2 19950413 (199519) 6p B41J002-195 <--  
 ADT DE 4030053 A DE 1990-4030053 19900920; DE 4030053 C2 DE 1990-4030053  
 19900920

PRAI DE 1990-4030053 19900920

IC B41J002-19; B65B031-00; B65D075-52; C12Q001-00

ICM B41J002-195

ICS B41J002-19; B65B031-00; B65D075-52; C12Q001-00

AB DE 4030053 A UPAB: 19931006

Storage device (1) has a storage space (4) for uptake of recording agent (7). It includes an indicator unit (11) with a substance (12) which undergoes irreversible colour change from its initial colour (16) to final colour (15), depending on the environmental temp. and/or time.

Specifically, substance (12) is activatable at a specific time, pref. after addn. of (7) to (4). (12) is esp. a monomer which can be polymerised to produce a crystalline solid. Alternatively (a) (12) comprises (in separate but connectable containers) an enzyme soln. a pH indicator, and a nutrient soln.; or (b) (12) is an oxidising material.

USE/ADVANTAGE - The indicator allows the storage time and environmental temp. (both of which can effect the quality of (7); usually an ink) to be monitored. Once the colour change has occurred, the device should be replaced.

1/3

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-W07F; D05-H09; G05-F

EPI: T04-G02

ABEQ DE 4030053 C UPAB: 19950524

A writing fluid in the reservoir of a recording device contains a substance (A) comprising a mixt. of (a) a relatively slowly polymerising monomer to indicate long term temp. conditions and (b) a rapidly polymerising monomer to indicate short temp. rises with (B) an irreversible colour change occurring due to the polymerisation.

The substance can pref. be activated at a preset time, esp. after filling into the reservoir. The monomers can be polymerised in the crystalline solid state. The monomers are acetylene monomers, esp. derivs. of 2,4-hexadiene-1,6-diol.

USE/ADVANTAGE - To indicate optically changes in fluid due to the surrounding temp. and ageing. A simple method to indicate that the fluid is no longer usable.

Dwg.0/0

L107 ANSWER 39 OF 39 WPIX (C) 2002 THOMSON DERWENT

AN 1992-042844 [06] WPIX

DNN N1992-032960 DNC C1992-018800

TI Liq. analysis element esp. for body fluids - has alternate compartments contg. different reagents useful for immunological interactions.

DC B04 J04 P42 P75 S03

IN BABIEL, R; DEEG, R; KLOSE, S; KOPFER, B; MAURER, E; KOEPFER, B

PA (BOEF) BOEHRINGER MANNHEIM GMBH; (HOFF) ROCHE DIAGNOSTICS GMBH

CYC 24

PI EP 469445 A 19920205 (199206)\* 14p  
 R: AT BE CH DE ES FR GB GR IT LI LU NL SE

DE 4024544 A 19920206 (199207)

NO 9103000 A 19920203 (199214)

AU 9181167 A 19920206 (199216)

CA 2047637 A 19920203 (199217)

FI 9103668 A 19920203 (199219)

ZA 9106054 A 19920429 (199223) 28p G01N033-543 <--

G01N <--

JP 04262256 A 19920917 (199244) 11p G01N033-52 <--  
 NZ 239060 A 19930326 (199316) G01N033-50 <--  
 AU 635143 B 19930311 (199317) G01N021-75 <--  
 PT 98514 A 19930930 (199342) G01N033-52 <--  
 US 5378638 A 19950103 (199511) 10p G01N033-543 <--  
 IL 99043 A 19951127 (199608) G01N033-52 <--  
 EP 469445 B1 19960515 (199624) DE 15p G01N033-52 <--  
 R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE  
 DE 59107805 G 19960620 (199630) G01N033-52 <--  
 JP 2607320 B2 19970507 (199723) 10p G01N033-52 <--  
 CA 2047637 C 20000111 (200023) EN G01N033-531 <--  
 ADT EP 469445 A EP 1991-112389 19910724; DE 4024544 A DE 1990-4024544  
 19900802; FI 9103668 A FI 1991-3668 19910801; ZA 9106054 A ZA 1991-6054  
 19910801; JP 04262256 A JP 1991-193242 19910801; NZ 239060 A NZ  
 1991-239060 19910722; AU 635143 B AU 1991-81167 19910718; PT 98514 A PT  
 1991-98514 19910731; US 5378638 A Cont of US 1991-736919 19910725, US  
 1993-63069 19930520; IL 99043 A IL 1991-99043 19910801; EP 469445 B1 EP  
 1991-112389 19910724; DE 59107805 G DE 1991-507805 19910724, EP  
 1991-112389 19910724; JP 2607320 B2 JP 1991-193242 19910801; CA 2047637 C  
 CA 1991-2047637 19910723  
 FDT AU 635143 B Previous Publ. AU 9181167; DE 59107805 G Based on EP 469445;  
 JP 2607320 B2 Previous Publ. JP 04262256  
 PRAI DE 1990-4024544 19900802  
 REP DE 3346975; EP 192428; EP 212642; EP 299428; EP 61167; FR 2355290; WO  
 8404171; DE 3346795  
 IC ICM G01N011-00; G01N021-75; G01N033-50;  
 G01N033-52; G01N033-531; G01N033-543  
 ICS B05B003-06; B41J002-01; B41J011-00; C12Q001-00;  
 G01N031-00; G01N031-22; G01N033-53;  
 G01N033-54; G01N033-545; G01N033-558;  
 G01N035-00  
 ICA G01N033-78  
 AB EP 469445 A UPAB: 19931006  
 (A) In a liq. analysis element with a carrier layer (2) having a reagent  
 region (4) with a reagent pattern applied by an **ink**-jet process,  
 the novelty is that the pattern comprises several sets (A, B, C) of  
 compartments (11-20), the compartments of the same set having the same  
 chemical compsn. but the compartments of different sets contg. different  
 reagents and being arranged alternately so that different reagent  
 compartments are closely adjacent but spaced apart.  
 (B) Prodn. of the analysis element involves using an **ink**  
 -jet nozzle head to eject discrete reagent liq. amounts successively onto  
 the reagent face of the carrier layer and moving the nozzle head and  
 carrier layer relative to one another so that the resulting dots form a  
 set of compartments on the reagent face.  
 USE - The analysis element is used esp. for analysing body fluids  
 esp. by immunological interactions.  
 2/3  
 FS CPI EPI GMPI  
 FA AB; GI; DCN  
 MC CPI: B11-C08; B12-K04A; J04-B01  
 EPI: S03-E14H; S03-E14H4  
 ABEQ US 5378638 A UPAB: 19950322  
 Analysis element for bioreactively analysing a liq. sample comprises a  
 carrier layer with sets of compartments comprising a reagent applied in a  
 predetermined pattern by an **ink**-jet process. A first set of  
 compartments consists of fixed compartments contg. a first binding partner  
 (I) which is solid phase bound to the carrier. (I) can bind specifically  
 to a binding partner contained in the liq. phase bound to the carrier. (I)  
 can bind specifically to a binding partner contained in the liq. sample or  
 in a second set of compartments. (I) is covered by a layer of inert, water  
 soluble protein.  
 Compartments of at least one set are elutable and contain a labelled

second binding partner (II). (II) is near the top surface of the layer of protein. (II) can bind bioreactively and specifically to a corresp. binding partner in the liq. sample or another set of components. The layer of protein is arranged between the carrier layer and the elutable compartments contg. (II) and over the fixed compartments contg. (I), so that the fixed and elutable compartments are arranged in an alternating horizontal relationship with the layer of protein between.

USE - For immunological reactions, lectin-sugar interactions, specific binding between biotin and streptavidin and enzyme-substrate binding reactions.

Dwg.2/3

ABEQ EP 469445 B UPAB: 19960618

An analysis element for the determination of an analyte in a liquid sample by means of a specific binding reaction of bio-reactive binding partners with a carrier layer (2) which contains a reagent domain (4), a binding partner applied in a defined pattern by a printing process, fixed to the carrier and thus solid-phase-bound, characterised in that the pattern comprises several sets (A,B,C) of compartments (11-20) applied with an ink-jet process, wherein the compartments of a first set (A) are fixed compartments which contain the carrier-fixed and thus solid-phase bound binding partner as a first binding partner, which is capable of binding specifically to a second binding partner which is contained in the sample or is a reagent, the compartments of a second set (B) are elutable compartments which contain a second binding partner in soluble form, which is capable of binding specifically with the first carrier-fixed binding partner or with a binding partner contained in the sample liquid; and the compartments of different sets arranged alternately, so that the compartments containing different reagents are close together but spatially separated.

Dwg.1/3

=> d his

(FILE 'HOME' ENTERED AT 08:57:22 ON 09 NOV 2002)  
SET COST OFF

FILE 'BIOSIS' ENTERED AT 08:57:34 ON 09 NOV 2002  
E CHILDERS W/AU

FILE 'MEDLINE' ENTERED AT 08:58:04 ON 09 NOV 2002  
E CHILDERS W/AU

FILE 'HCAPLUS' ENTERED AT 08:58:17 ON 09 NOV 2002  
E CHILDERS W/AU

L1	5 S E4,E17
L2	1 S L1 AND CARTRIDGE
L3	4 S L1 NOT L2
	E HEWLET/PA,CS
L4	3329 S E3-E300
L5	341 S E301-E417
L6	3329 S L4,L5
L7	201 S L6 AND B41J/IC,ICM,ICS
L8	189 S L7 AND B41J002/IC,ICM,ICS
L9	1 S L8 AND B41J002-04/IC,ICM,ICS
L10	18 S L8 AND B41J002-195/IC,ICM,ICS
L11	66 S L6 AND G03G/IC,ICM,ICS
L12	26 S L11 AND G03G015/IC,ICM,ICS
L13	19 S L7 AND L11
	SEL DN AN 16
L14	1 S E1
L15	1 S L2,L14
L16	2 S L9,L15

L17 30 S L10,L12 NOT L1,L13-L16  
 SEL DN AN 3 7 10  
 L18 4 S E1-E4  
 L19 5 S L16,L18 AND L1-L18  
 L20 15 S L8 AND CARTRIDG?  
 L21 1 S L19 AND L20  
 L22 5 S L19,L21  
 L23 14 S L20 NOT L22  
 L24 17 S L6 AND G06F/IC, ICM, ICS  
 L25 2 S L24 AND L7,L11  
 L26 15 S L24 NOT L25  
 L27 5 S L22 AND L1-L26  
 L28 14527 S B41J/IC, ICM, ICS  
 L29 664 S L28 AND G06F/IC, ICM, ICS  
 L30 2439 S L28 AND G03G/IC, ICM, ICS  
 L31 95 S L29,L30 AND CARTRIDG?  
 L32 37 S L31 AND CARTRIDG?/TI  
 L33 58 S L31 NOT L32  
 L34 56 S B41J002-04/IC, ICM, ICS  
 SEL DN AN 42 51  
 L35 2 S L34 AND E5-E8  
 L36 7 S L16,L27,L35 AND L1-L35  
 L37 0 S L34 AND G06F/IC, ICM, ICS  
 L38 0 S L34 AND G03G/IC, ICM, ICS  
 L39 904 S L29,L30 AND B41J002/IC, ICM, ICS  
 L40 2 S L29,L30 AND B41J002-195/IC, ICM, ICS  
 L41 586 S L39 AND G03G015/IC, ICM, ICS  
 L42 25 S L41 AND CARTRIDG?  
 L43 24 S L42 NOT L36  
 SEL DN AN 2 4 7 18  
 L44 4 S L43 AND E9-E12  
 L45 11 S L36,L44  
 L46 18 S L28 AND 9/SC, SX  
 L47 20 S G03G/IC, ICM, ICS AND 9/SC, SX  
 L48 38 S L46,L47  
 L49 0 S L48 AND CARTRIDG?  
 SEL DN AN 10 13 14 16 19 21-38 L48  
 L50 15 S L48 NOT E13-E81  
 L51 26 S L45,L50 AND L1-L50

FILE 'HCAPLUS' ENTERED AT 09:50:27 ON 09 NOV 2002

FILE 'WPIX' ENTERED AT 09:50:45 ON 09 NOV 2002

L52 112951 S B41J/IC, ICM, ICS, ICA, ICI  
 L53 15814 S L52 AND G03G/IC, ICM, ICS, ICA, ICI  
 L54 16395 S L52 AND G06F/IC, ICM, ICS, ICA, ICI  
 L55 1789 S L53 AND L54  
 L56 34 S L55 AND CARTRIDG?  
 E CHILDERS W/AU  
 L57 88 S E3,E5  
 E HEWLET/PA  
 L58 68 S E1,E2,E3,E5,E17-E20  
 L59 10959 S E28-E41  
 L60 11189 S (HEWLET?(L) PACKARD?)/PA  
 E HEWP/PACO  
 L61 10984 S E3  
 L62 11195 S L58-L61  
 L63 84 S L52 AND L57  
 L64 85 S L57 AND L62  
 L65 3 S L57 NOT L63,L64  
 L66 85 S L63,L64  
 SEL DN AN L66 1 3 9 11 14 15 16 17 21 22 23 31 32 34 36 38 39 4  
 L67 21 S L66 AND E1-E39

L68 14 S L67 AND CARTRIDG?  
 L69 11 S L67 AND INK(L) (CONTAINER OR RESERVOIR?)  
 L70 21 S L67-L69  
 L71 33 S L56 NOT L66  
 L72 284 S L52 AND G01N/IC, ICM, ICS, ICA, ICI  
 L73 8 S C12M/IC, ICM, ICS, ICA, ICI AND L52  
 L74 6 S C12N/IC, ICM, ICS, ICA, ICI AND L52  
 L75 2 S C12P/IC, ICM, ICS, ICA, ICI AND L52  
 L76 16 S S03-E14H?/MC AND L52  
 L77 19 S (B12-K04? OR C12-K04?)/MC AND L52  
 L78 34 S L73-L77  
 L79 24 S L72 AND L78  
 L80 34 S L78, L79  
 L81 26 S J04-B?/MC AND L52  
 L82 45 S L80, L81  
 L83 30 S L82 AND L72  
 L84 45 S L82, L83  
 L85 30 S D05-H?/MC AND L52  
 L86 57 S L84, L85  
 L87 30 S L86 AND L72  
 L88 57 S L86, L87  
 L89 40 S L88 AND B41J002/IC, ICM, ICS, ICA, ICI  
 L90 17 S L88 NOT L89  
 SEL DN AN L89 4 7 9 10 11 12 13 15 16 17 20 21 22 23 24 25 27  
 L91 16 S L89 NOT E40-E105  
 L92 37 S L70, L91  
 L93 57106 S B41J002/IC, ICM, ICS, ICA, ICI  
 L94 125 S L93 AND (M424 OR M740)/M0, M1, M2, M3, M4, M5, M6  
 L95 85 S L94 AND T?/MC  
 L96 85 S L94 AND T?/DC  
 L97 0 S L94 AND G06F/IC, ICM, ICS, ICA, ICI  
 L98 85 S L95, L96 NOT L88  
 L99 266 S B41J002-195/IC, ICM, ICS  
 L100 541 S B41J002-04/IC, ICM, ICS  
 L101 804 S L99, L100  
 L102 31 S L101 AND L53, L54  
 SEL DN AN 18 21  
 L103 2 S L102 AND E106-E109  
 L104 39 S L92, L103 AND L52-L103  
 L105 31 S L104 AND (CARTRIDG? OR INK?)  
 L106 8 S L104 NOT L105  
 L107 39 S L104-L106

FILE 'WPIX' ENTERED AT 10:29:58 ON 09 NOV 2002